UNIVERSITY OF PENNSYLVANIA

A STUDY OF THE INDUSTRIAL AND AGRICULTURAL DEVELOPMENT DEPARTMENTS OF AMERICAN RAILROADS

CHU CHANG LIANG

A THESIS IN ECONOMICS
PRESENTED TO THE FACULTY OF THE GRADUATE
SCHOOL IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

PEIPING, CHINA
1933

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INTRODUCTION

1 INTRODUCTION

INTRODUCTION

For more than a century the raliroads have been an important factor in the development of American civilization. Within that period, through the aid of an ever expending system of land transportation, American business, industry, and agriculture have reached an unprecedented development. Railroad transportation plays a part in every step of production and distribution. As the prosperity of the railroads depands upon the wealth of the territory traversed by their lines, they have always been greatly interested in industrial and agricultural development. Out of the realization on the part of the railroad companies of the value of industry and agriculture to themselves, came the creation of groups of specialists whose services were placed at the disposal of those engaged in such activities.

The general object of this study is to state, as clearly as may be, the organization, purposes and activities ot these departments. Suggestions based upon general business and economic principles and the experience of various development agents are interpolated wherever possible. The purpose of this study is to subject these departmenf to an analysis and interpretation in the following particulars: (1) purposes and functions, (2) organization, (3) activities, (4) qualifications of agents, (5) relationship with other groups, (6) methods of operation, and (7) accomplishments.

The object of this study is to furnish an analysis of these departments and their work which may prove helpful to those seeking information in this field.

PROCEDURE

As no study of this type has previously been made, it may be of interest to learn how the necessary information was obtained. A description of the procedure followed in collecting data will be found in appendix I.

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PART I

Industrial Department

PART. I

INDUSTRIAL DEPARTMENT

CHAPTER I

PURPOSE AND ORGANIZATION

Toward the end of the last century, the railroads began, in a small way, to play a different role in the national life of this country. Prior to 1888, the main idea of the leaders in transportation appeared to have been the expansion of facilities.

As early as 1888, one railroad had begun to experiment with a different type of development work. Instead of waiting for business to come to it, this company conceived the idea of going out to hunt customers. It found that business men did not altogether understand how to use the railroads to their own best advantage. Hence, it commenced to teach its patrons these necessary facts.

From this seedling, the idea has spread until now more than forty American railroads employ experts in industrial problems. These men, known as industrial agents, serve as liaison officers between the railroads and the business public. Their chief function is to offer suggestions concerning the best methods of industrial development within their territories. While only a small number of railroads employ specific officials for this work, practically all of them have someone who serves in this capacity as occasion requires.

Some years passed before a second railroad embarked upon an enterprise of this character. Prior to 1900, only a few had thought it necessary to devote real attention to public service. After this date, the number of these departments increased year after year[1]. As late as nineteen thirty, two railroads were found to be embarking upon such an experiment of business service. [2]

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1. For list of industrial agents, see the annual proceedings of the American Railroad Development Association and the Official Guide of the Railways.

2. In answer to a questionnaire sent out in connection with this study, some of the railroads gave the dates of the establishment of their industrial departments as follows:—
1888, 1896, 1897, 1898, prior to 1900, 1900 (3 railroads), 1901, 1902, 1903, (2 railroads), 1905, 1906, 1907, 1909, 1910 (4), 1911, 1912, 1915 (3), 1916, 1920 (4), 1922, 1923 (2), 1925 (4), 1926 (2), 1927 (2), 1028 (4), 1929 (3), and 1930 (2).

One can readily see from the above that most of the industrial departments are of recent creation. Although industrial development has always been the life blood of railroad prosperity, only within the last few years has sufficient exact knowledge been available to enable these officials to function profitably.

Perhaps, it might not be amiss to outline the industrial situation as it existed some forty years ago.

There was, for instance, no power problem. Electricity, which is now the source of industrial energy, was little more than a scientific plaything. Only a few years before, to say that a building was illuminated by electricity, would have been sufficient inducement to attract crowds of spectators. There was no urban transportation problem. Cities were compact. The horse-car represented the spirit of the times. Large scale production had just begun to be a factor in industry. Carnegie and Rockefeller were barely beginning to play with the corporation idea. As for the railroads themselves, they were still the iron race horses on which the reckless gambled. With the development of modern industry, co-operation became a necessary part of the business and commercial life of America. Chambers of Commerce, Boards of Trade and industrial associations of various sorts were organized. The field was being made ready for the coming of the industrial agent. And the man himself was being properly trained for his work. For an industrial agent must have a technical background. He must know at least the principles of engineering, industrial management and many similar subjects to be able to serve in an advisory capacity to modern industries. So, although the railroads have long been interested in these matters, it has only been within the last few decades that industrial development work could be definitely systematized. Industries today are being operated upon a scientific basis. Plant location, for instance, involves a careful study of many factors, some of which would seem, to the layman in such matters, highly irrelevant.[3] In order to secure industries as traffic producers, the railroads themselves now undertake

3. See Appendix II. Factors governing the choice of sites for industrial plants.

to supply much of this necessary information. Furthermore, the number of manufacturers, seeking locations more in accord with the actual needs of their industries, is steadily increasing, which makes it advisable for railroad lines, seeking additional traffic, to present their claims to the location seekers. Being assigned to the specific task of industrial development, the industrial agent collects adequate data on all sites suitable for such purposes and is able to produce desired facts at short notice. The advantage to both railroad and manufacturer in such a department is that each has the assurance of expert advice in these matters. Hence, manufacturers are becoming more and more willing to consult the railroads when seeking new locations and regarding many other matters relating to the welfare of their business.

Another reason for the establishment of a separate development department is because the railroad itself has come to realize the necessity for an adequate division of executive responsibility. Concentration is the cornerstone of modern industrial management. Manufacturers are constantly endeavoring to increase the efficiency of their plants. The highest efficiency of production is reached when the per unit expenditure of labore power is reduced to the minimum.

There are but two methods of developing railroad traffic; intensive and extensive. In former days, as has already been pointed out, traffic came to the railroads. Lines were built to meet existing demands. Once the railroad network of the country had been laid down, opportunities for extensive development practically came to an end. If prosperity were to continue, a different policy must be pursued. The railroads then began canvassing the possibilities for additional traffic within their territories. It was not enough to solicit business, it was necessary to develop it. Someone has said: "The best solicitor for a railroad is a smokestack working in a plant located along its track." Intensive development consists of fostering existing industries and inducing new ones to locate on its lines.

Railroads have always sought to have the raw material within their territories converted into finished products before, rather than after, shipment out of their zones. Hence, they have tried to attract industries which could turn this into finished products and to induce plants already within their radius to use raw material adjacent to them. A well balanced industrial program guarantees a reasonably steady flow of in-bound and outgoing traffic. Where this is highly diversified, a continuous demand for service is assured, even though some industries decline in value. It is well known that many businesses are subject to seasonal and cyclical fluctuations. In order to provide themselves with sufficient traffic, especially during years of depression, the railroads have found it wise to locate as many plants as possible along their lines.

At present, the railroads are facing competition not only with rival railroads but with other modes of transportation such as trucks and busses. As a result of the fact that the per unit cost of operation of such means of transportation is less than that borne by the railroads, the latter have found their margin of profit, in many instances, so narrow that, in order to continue operation, they must seek the largest possible volume of traffic. Therefore, no railroad can afford to neglect the fullest possible stimulation and development of these traffic producers.

One of the functions of the industrial department is the creation, in the mind of the public, of a friendly feeling for the railroads. Goodwill has always ranked as a most important asset in any business. Not the least important objective of the department is the creation of this feeling toward the particular system it represents.

The Organization

There has always been some official in the traffic department responsible for industrial expansion work. Before the beginning of specialized effort in this direction, many companies employed men skilled in making contacts with shippers and the business public in general. This system is still followed by many railroads which have not found it expedient to create special departments for this work.

The division freight agent, the general freight agent or some other member of the traffic department deals with matters of this type for such railroads.

Many of the larger railroads have developed industrial departments consisting of one or more specialists. Sometimes, clerical and statistical employees are drawn from the traffic department, but the usual method is for the head of the industrial department to employ his own subordinates such as clerks, stenographers and statisticians. As soon as the volume of business increases sufficiently to warrent this step, an office manager or, as he is usually called, chief clerk is employed who supervises the work of the office and represents his superior during the absance of the latter. He handles the incoming and outgoing mail and keeps in constant touch with the various industrial agents in the field. The next step in the expansion of the department is the employment of a travelling representative who seconds the work of the industrial agent by keeping in contact with the shipping public served by the railroad after proper connections have been established. He also takes over a large share of the routine work of his superior. Where there is more detail than a single agent can attend to, an assistant is employed and the work divided. This official proceeds largely on his own initiative.

So far, only the simplest type of industrial department has been dealt with which operates out of a single office. Such a set-up is possible only where the territory covered is not extensive. The scope of its work is limited. Control is centralized. Where a railroad covers a large territory, the functions and authority of this department are divided and co-ordinate branch offices established at strategic points within the system. Where the main office is centrally located, industrial agents work directly therefrom, although each is assigned his own distinct territory. Under this arrangement, the work is frequently so divided that each member of the department is in charge of some specific activity. For example, a large industrial department frequently has on its staff a geologist, an industrial engineer, an industrial surveyor, a traffic researcher, a

chief clerk, some secretaries, draftsmen, statisticians, clerks, file clerks and stenographers.[1] The functions of a few of these officials will be described in detail elsewhere.

The chief of the industrial department may be given the title of assistant to Vice-President, industrial commissioner, director of industrial development, development director, manager of industrial department, general industrial agent, Vice-President in charge of industrial development, general development agent or more commonly industrial agent. Sometimes, he also supervises agricultural development projects. In the latter event, he is given a title indicative of the dual nature of his work, such as industrial and agricultural manager or general industrial and agricultural agent. The industrial department is usually a branch of the traffic department. In reply to inquiries made while this study was in preparation, ten industrial departments reported to the president, one to assistant to president, twenty-two to vice-president in charge of traffic, one to assistant to receiver, one to general manager, three to general traffic manager, six to freight traffic manager and four to general freight agent. The majority of the industrial departments report directly to the higher officials of the railroad, while a few are under the direction of subordinates. This discrepancy is apparently due to internal differences in the set-up of the various roads. Some place this department in a position of major importance while others relegate it to a minor position, depending upon the nature of the territory traversed, the scope of work handled, the historical background and the necessity for aggressive development.

Qualifications.—The successful operation of the industrial department depends almost entirely upon the ability of the industrial agents. Their duties are so varied that there is no definite routine which may be generally followed. They must formulate their own methods of procedure.

Those characteristics which taken together make up what is called personality are particularly important in the

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1. For list of industrial agents, see Official Guide of Railways and proceedings of American Railway Development Association.

work of the industrial agents because their principal duty is to represent their railroads.

One of the fundamentals for success in this occupation is abundant energy. Few other professions exact so much of their members as the one we are considering. It is a well known fact that the qualities we have just enumerated usually rest upon a foundation of sound physical development.

Mere vitality, unless seconded by an unusual degree of intelligence, affords scant basis for this work. The industrial agents must be the intellectual equals of their associates who are, for the most part, men high in the business and commercial world.

Industrial agents are usually well informed regarding the various fields of industrial activity, keeping themselves at all times abreast of the minor as well as the major changes in manufacture and commerce. They have abundant information regarding the requirements of various industries and are familiar with the basic principles of industrial economics and finance. In addition, they understand the real estate market and the science of plant location.

As their work is closely related to that of the civic and commercial organization, they naturally familiarize themselves with the principles of civics, sociology and the other social sciences as well as the details of industrial development in the various regions in order to be of assistance to the communities through which their railroads pass. Most of them find some knowledge of practical politics to be of great advantage. They are generally adept at the task of reconciling groups with diverse interests. As their statements must be logical and accurate, the ability to think with speed and clearness stands high in the list of qualifications for this profession.

As they are in constant contact with the public, it is highly essential that the industrial agents shall be close students of human nature and what are known as "good mixers," good salesmen and all around business men.

They are doers, teachers, men as a rule possessed of great versatility. They usually take considerable interest in the various activities of the communities along their lines, sometimes initiating and at others lending hearty support to various forms of local betterment.

Public speaking is a part of the daily work of industrail agents. They are always being called upon to talk before meetings of commercial and industrial organizations. They frequently represent the railroads at large gatherings where they are often given opportunities to express the points of view of their employers. Talks range from a few extempore remarks to formal addresses upon specific subjects.

Of equal or perhaps greater importance is the ability to write pleasingly. Many of the industrial agents' contacts are made only through correspondence. Particular attention is paid to this branch of their work, for writing is only talking on paper. Letters written by the industrial agent in the course of business, represent the organization by which he is employed. Mistakes in conversation can be explained, obscure remarks amplified but such emendations are impossible while a letter is being read. One cannot adapt his remarks on paper to conform to the spirit of the reader as is constantly being done in conversational contacts. As the time of the industrial agents is valuable, they try wherever possible to substitute the written word for personal contacts, as many matters can be disposed of much more quickly on paper than through interviews.

Industrial agents are experienced not only in railroad traffic work but in matters relating to civic betterment, business and publicity as well. In choosing industrial agents, railroads usually select them from among their own employees who has had long experience in the traffic department. They have frequently served as solicitors or traffic agents in certain districts, thus becoming familiar with both the industrial opportunities in the territory and the manufacturers and business men dealing with the railroad. Again, industrial agents have worked in other capacities with the railroad before being appointed to this position. Sometimes, men of ability entirely outside the railroad field

are choosen for this task. They may have been engineers in large factories or managers of industrial enterprises. Sometimes, men who have specialized in the handling of traffic or sales in such concerns are selected. Others enter the profession from such an organization as the chamber of commerce.

Industrial agents might be called specialists in co-operation. They are the links between the railroads and the public they serve. To perform their tasks and achieve the best possible results, they usually affiliate with the commercial and civic organizations in the communities along their railroads, taking an active interest in all local enterprises.

CHAPTER II

THE INDUSTRIAL AGENT

The Office; Industrial Location; Industrial Surveys; Preparing Towns for New Industries; Care of Established Industries; Conservation of Industrial Acreage; Prevention of Freight Claims at Their Sources; Determination of Policy in Regard to the Improvement of Service and Facilities. and Extension or Abandonment of Lines; Analysis of Printed Matter Sent Out.

Although the greater part of the time of the indultsrial agent is spent in the field, a definite headquarters is maintained for his department. Location, equipment and management of his office is similar to that of any ordinary business concern except in a few particulars. It is easily accessible to the traffic department and convenient to the representatives of industrial concerns.

In addition to routine correspondence, this official has on file complete data regarding available industrial sites along his line. This material consists mainly of blue prints, maps and records of industrial surveys. The industrial agent must also devise many business forms in order to facilitate the handling of the great amount of data kept in his office.

The walls of the office are decorated with a map of the railroad system, an industrial map, photographs of attractive buildings, sites, warehouse and other facilities afforded by the line.

Show cases are installed for the exhibition of industrial products and mineral resources. Again, there may be displays of pamphlets and booklets advertising the advantages of the various cities or sites.

Industrial Location.—One of the functions of the industrial agent is the securing of new industries for the territory traversed by his railroad.[1] Industrial prospects

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1. Questionnaire: All industrial agents answered "yes" to the question: "Do you locate new industries on the line?" 66-o-o. See appendix I.

seldom seek his advice. Direct mail inquiries on the part of the industries or personal visits by their representatives at the office of the department furnish the best leads, but there are too few of these. Therefore, he must seek them out. Apparently, each company has its own method of solicitation. It is impossible, within the limits of the present study, to indicate more than a few of these. One of the chief sources of information is the leads sent in by the employees.

The industrial agent makes frequent trips along his line to establish direct contact with the local employees of the railroad in order to acquaint them with the work done by his department and thus secure their co-opera-tion in relaying information regarding potential prospects who come to their attention. He also attends group meetings and addresses these gatherings for the same purpose. Personal contacts are supplemented by artticles contributed to the employees' magazine and written instructions sent out from time to time by the head of the traffic department, emphasizing the desirability of new industries in the territory and stressing the advantages the railroad is in a position to offer. In order to make these employees salesmen for the railroad, sufficient data is supplied to enable them to place the advantages of their company befors the public. They tap many sources of information inaccessible to the agent himself. They send in news clippings and report fires, mergers, new charters, building permits, plants closed down, newly organized industries, reorganizations, bankrupcies, land or buildings available for industrial purposes, newly discovered natural resources, new developments in towns, changes in tax laws, transportation facilities and such other alterations as would effect the location of new industries or the relocation of those already established. They furnish information to the industrial agent regarding calamities such as floods, storms, earthquakes, eruptions and hurricanes. They note the increase or decrease in business activity, orders and capitalization; come in constant contact with chambers of commerce; secure information from local authorities and persons active in the commercial, financial and real estate fields. They also forward such information as may be gathered in their daily contacts with business men of the community.

The industrial agent also seeks co-operation from civic, commercial, financial and real estate interests in his territory. Chambers of commerce, business men, bankers and real estate brokers are, naturally, the best informed members of their communities regarding new propositions. They are urged to forward to the industrial agent every item of this kind. He meets these people as often as possible and is thus able to collect much valuable information.

Additional leads are frequently found in the newspapers of important cities, financial and trade journals and business magazines. He often subscribes to a news clipping agency for items concerning plant expansions, new inventions, fires or labor disorders. He may inquire at the State Capitols regarding new corporations. He attends business conferences, meets representatives of important manufacturers and visits local factories to keep in touch with conditions, thus securing many important leads.

Publicity is sought in order to make the work of the industrial department more widely known. Wherever possible, the industrial agent acquaints potential prospects with the advantages of locating their plants in his territory. It is a common practice for industrial departments to distribute booklets describing the various cities on their lines and stressing industrial advantages of these communities. Advertising is also frequently resorted to. Statements regarding the work of the industrial department appear on dining car menus and time tables. Posters are put up in passenger cars, passenger and freight Stations and other places where they may meet the eyes of potential prospects.

The industrial agent also co-operates with and watches the results of the work of other organizations engaged in industrial development. In co-operation with such groups, letters are frequently sent to industrialists who may be interested in locating in some particular city or region. This method frequently produces a number of prospects. Then, the industrial agent launches a follow-up campaign. Where the prospect is genuinely intersted, the industrial agent is usually able to find a satisfactory site within his

territory. Once a location has been selected, suited to the needs of the prospect, members of the industrial department continue solicitation until the matter is definitely settled.

Investigation starts as soon as a prospect is brought to the attention of the industrial agent. He makes a personal visit whenever possible, as such contact is usually more effective than negotiations by correspondence. Such a visit frequently reduces the time necessary for completing the transection by several months. During such a visit, the service of the industrial department is sold to the prospect. His interest is aroused to the extent that he is often willing to be guided by the judgment of the industrial agent. Some railroads request prospects to fill out forms indicating their requirements. A simple form of this type follows:—

Name of firm.....
Address.....
Kind of business .....
If ground wanted; Acreage.. ....or square feet.....
Character of building required... .....
Approximate number of employees.....
Skilled .....Male.. .....Female.....
Unskilled .....Male.....Female .....
Preference in location.....
How soon required?.....
Will you buy or lease?.....
If building is not available, will you construct your own? .....
Is side track required? .....
From what territory is your raw material received? ....
To what territory is your product shipped? ....
Approximate traffic per month: Inbound.....Outbound .....
Party interviewed... . .....Date .....
Remarks .....

Similar forms are used to keep records of prospect.

As soon as the prospect is discovered, the industrial agent makes inquiries as to whether his business is suitable to the territory. He further ascertains whether it is a "nuisance" industry. There are many industries not suited to urban communities, viz: A plant that does not control smoke, produces obnoxious odors or discharges waste that would pollute streams is not desirable in thickly populated districts. Other undesirable industries are powder factories,

slaughter houses and glue manufacturing plants. Assuming, however, that the proposed plant is not objectionable on these grounds, the next thing to be ascertained is the tonnage that will be handled annually.

The chief interest of the railroad being freight, it is essential that the volume of the traffic of the prospect be ascertained. By estimating the probable volume of production, and finding out sources of material and potential markets, a fairly accurate forcast of in-bound and outgoing traffic can be made.

After these facts have been ascertained, the industrial agent seeks to learn the amount of floor space or land area required by the prospect. This official is constantly seeking suitable sites or buildings. He keeps a complete record of every piece of such property in his territory so that he may be able te produce data on any location at a moment's notice. In order to accomplish this, all such properties whether owned by the railroad or by other interests are carefully investigated and memoranda kept covering the information obtained.

Occasionally, the industrial agent himself rides over the line in search of new locations. When such property is noted, the local station agent is instructed to send in complete information by filling out forms similar to the following:—

(A) For Land

Location of property .....
Dimensions (Give frontages on streets, highways, railroad) .....
Area (Acres or sq. ft.) .....
Proximity to property of water, sewer, gas, electricity, trolley and bus lines .....
Sale price.....Lease price.....
Agent..... .....Address .....
Owner .....Address .....
Remarks .....

(B) For Building

Location.....Name .....
Character of available building (Brick, stone, frame etc.).....
Number of floors and size of each .....
Approximate total number of square feet of floor space .....
Hight of ceilings, each floor.....
Equipment and conveniences .....
Fire Protection.....

Power: Capacity.....
Individual or Company Siding and Car Capacity .....
(a) If no siding, distance of Bldg. from Frt. Station.....
(b) If no siding, distance from nearest Public C. L. Del'y available .....
Dimensions or acreage of property.....
Building last occupied by.....For what purpose .....
Sale price .....Rental per month .....
Name and address of owner or agent .....
Attach photograph, sketch or cut of building if obtainable.....
Attach blue print or map of property if obtainable.....
Local labor situation....Male.....Female.....
Civic organization (City, borough, village or township).....
Taxes, each class separately .....
Available light, heat and power facilities and rates .....
Remarks .....

Next, the industrial agent writes either the owner of the property or the real estate agent representing him to obtain further information. Form similar to the following are sent to them:—

Location.....Date .....

Agent Address

Floor	Area	Construction	Dimensions	Type	Ceiling	Lb. Per Sq. Ft.	Bays-Column-Spacing	Daylight
1.								
2.								

NOTE: When plant comprises more than one building, rule blank sheets and describe each building as above.

Proposed used.....When built .....
Occupied.....By .....
Suitable for .....
Insurance rate.....Possession.....
Attach photo, sketch or cut of building .....

LAND	EQUIPMENT
Frontage..... Depth.....	Elevators .....
Area	Line shaft .....
R. R. Siding.....Capacity	Heating.....Wiring .....
If no siding: Dist. to Station or to C. L. Delivery	Sprinkler system .....
Water Front.....Depth	Boiler..... H.P. .....
	Engines..... H.P. .....
	Generators .....

FACILITIES	PRICE
Water	Sale Price.....
Sewerage.....	Mortgage Rate.....Expire.....
Gas (Nat. or Art.).....	Lease Price .....
Electricity	Lease Years .....
Trolley Service.....	Taxes .....
Boats	Mortgage .....
Fire Protection	

Local Labor Situation.....Population of community .....
Remarks .....

When a piece of property is sufficiently valuable or when there are several sites in a locality, the industrial agent makes a personal inspection. Before taking such trips, he obtains a map giving a general idea of the layout. When the site or building is owned by the railroads, this is secured from the real estate department; if owned by outside agencies, it can generally be obtained from the real estate firm handling the property. Such maps are usually checked for accuracy. The industrial agent seeks to learn the accessibility of the property to streets, sewers, power lines, street car service, fire protection and water. He also inquires regarding the price. Without this preliminary information, his effort may be wasted. Personal knowledge of the property is important because this enables the industrial agent to advise his clients more accurately. In addition to making detailed memoranda of the property, the agent sometime carries along a camera that he may have pictures to supplement the data otherwise collected. When all necessary facts have been obtained, the record is put on one of the standard forms for ready reference. Being very brief, these serve as an index to the property.

Copies of these forms are also reproduced for distribution to prospects. It is essential that such data be complete and accurate. They are often supplemented by pictures, floor plans, diagrams or maps showing the location, transit facilities, siding or proposed siding and surrounding conditions. The industrial agent compiles a list of sites that should fulfiill the requirements of the prospects. Data in support of these are also supplied. When requested, the industrial agent shows the comparative costs of manufacture and distribution in various localities. The object of such comparisons is to demonstrate to the prospect the

advantages of the proposed locations over other possible sites. The industrial surveys, booklets or other advertising matter prepared by the communities as well as by the railroads are also used. This material is generally accompanied by a letter which contains a synopsis of all necessary information. The data is arranged in such a way that the most advantageous features of the proposed location are particularly stressed. Names of the owners or real estate brokers having control of the property being considered, are given to the prospect who is urged to get into contact with them. The industrial agent arranges beforehand with such persons to have the prospect taken care of.

When a building or site which is found to be satisfactory to the prospect is owned or controlled by the railroad, the industrial agent ascertains from the real estate department the sale or leasing price. However, negotiations regarding reduction or terms are conducted by the real estate department.

In the case of a lease, the agreement is made subject to a thirty, sixty or ninety day notice. It is often necessary to asccertain from the traffic and operating departments that no other important use could be made of the property before the real estate department makes the lease. When such leases are to run for a year or longer, or if the property is to be sold, it is necessary to secure the approval of the freight traffic manager, general manager, vice-president in charge of traffic, and at times, of the president.

In the case of property owned by outside parties, the industrial agent puts the industry in touch with the real estate operator having it in charge so that negotiations may be carried on directly between the parties. Where misunderstanding arises, the industrial agent renders every possible assistance. Almost as soon as sites are proposed, arrangements are made for the prospects to inspect them. Such an inspection is most valuable from the point of view of the industrial agent. After visiting the site, the prospect can talk in concrete terms. The owner or real estate broker in charge of the property should also be present during such a visit and it is sometimes helpful to get in

touch with the local chamber of commerce or other organizations or individuals who might be interested in the proposition.

During the course of negotiations, the prospect frequently requests the help of the industrial agent in ascertaining costs of production, labor supply, power, public utilities, accessibility to materills or markets as related to a particular location. Generally, the industrial agent having already collected such information, will be of great assistance in these matters. Frequently, he is compelled to make a detailed study of a particular problem in order to supply necessary data. For example, in locating a rayon factory, a thorough investigation must be made regarding the chemical constitutents of water, climatic conditions and female labor supply. The industrial department keeps itself informed as to every movement of the prospect so that it can offer the right suggestion at the right time. Being unable to keep in constant contact with every prospect, the industrial agent directs local traffic representatives to keep in touch with them.

When the choice of a prospect has narrowed down to a few sites, the co-operation of local interests becomes most important. In many instances, streets need to be paved, trolley lines extended water or sewer system changed, a public building already on the site may need to be removed and other improvements initiated which can be made only with the co-operation of local athorities. One of the functions of the industrial agent is to assist in handling these matters. Sometimes, a prospect asks the railroad to construct buildings, loading facilities, or other equipment to be leased to him. Such requests vary from a platform or a livestock pen to a warehouse. Railroads have various policies regarding these matters. The industrial agent frequently decides upon the advisability of complying with these requests. He may be able to find a contractor or a finance company willing to do this for the industry or he can suggest other expedients. The industrial agent makes every effort to get manufacturers to locate on his line. Other officials of the railroad are frequently able to lend valuable assistance through their personal relations with influential industrialists.

As a great number of active prospects pass through the office, someone familiar with the duties of the department is always at hand to see that no undue delays occur. Correspondence with industrial prospects is summarized as follows:—

Company.....Address.....Commercial rating ...
Contact with: Name....Posotion .....Address.....
;, ... ,, ... ,, ...
Plants .....
Misc. information .....
Correspondence: Date.....Name.....Subject.....
,, ... ,, ... ,, ...
Personal visit to and from:..... .....

Even when the industrial agent has developed the type of technique described above, his efforts are successful, at best, in but 5% of the cases so dealt with. Average results appear to run about two per cent successful. One can readily see therefore the amount of energy which must be spent without apparent gain to the road.

A few of the principal reasons for failure in this field appear to be: slowness in response due to the lack of preparation or due to a lack of co-operation of other departments within the railroad or with outside organizations. It may be held up by local commercial organizations or real estate brokers. The industrial agents may not be at fault but the prospect may resent apparent inattention and refuse to have further dealings with the department. A rise in the price of real estate, on learning of a prospective demand for a given piece of property, often causes the failure of negotiations. To avoid this contingency, it is sometimes necessary for the industrial agent to keep a prospect from the knowledge of local real estate brokers, or else, to make an agreement with them that the price be kept at its usual level for the benefit of all concerned. Sometimes, suggested sites are not suited to the needs of the prospect owing to competition, distance from a logical market for his product or other factors. Occasionally, the prospect changes his policy. Business conditions may not be propitious for the development of new industries or the transfer of an already established concern. The motive which originally influenced the seeking of a different location may no longer be operative.

Objections sometimes arise from the inability of the industrial agent to find anything satisfactory within his territory.

Many propositions fail through a lack of enthusiasm on the part of the community. Local spirit appears to have an important bearing upon the success of certain industries.

In many cases, prospects are approached by competing railroads or independent development agencies. Thus, it is not unusual for the industrial agent to find that his prospect has decided upon a location of no value to the company he represents. Sometimes, the prospect refuses to locate in a particular place for no better reason than mere prejudice.

The industrial agent takes note of various causes leading to changes in industrial location. Some of these are the exhaustion of raw material; strikes and other labor troubles; changes in living conditions; disappearance of natural advantages; existance of nuisances; changes in markets; competition; introduction of unfavorable laws; real estate price increases; change in water or power supply; changes in internal policies of the industry; removal of parent plant and rise in tax rates. The industrial agent is constantly on the alert to note such changes because where they occur in his territory, he may be able to retain the existing industries by striving to eliminate such undesirable conditions. On the other hand, he is active in endeavoring to persuade any industry which is being subjected to similar disadvantages elsewhere to locate in his territory.

The industrial agent is often called upon to use his influence with local organizations to secure financial aid for industries temporarily in straitened condition. It is a common practice for local chambers of commerce to help at such times. Different methods are employed in different communities. The Chamber of Commerce of the United States has made a survey of these practices. The methods employed by 96 communities under study were classified into: Cash fund, of which there were 44; credit fund 25; financing service 5; combination cash fund and credit

fund 4; combination of cash fund and financing service 4; and others not known 14. Forty seven of these plans are active, 6 inactive, 23 abandoned, 6 organizing and 14 considering.[2]

Aside from such local civic organizations, there are bank or industrial finance companies in the larger cities along the railroad lines which specialize in financing such propositions. The industrial agent, after careful investigation of the company with which he is negotiating, often makes favorable recommendations to the above mentioned institutions.

Closely associated with financing is the encouragement given by the communities themselves. Frequently, local organizations set aside land for community industrial colonies, erect industrial incubator buildings, develop town lot plans and encourage private development companies. A railroad anxious to exploit the properties along its lines sometimes adopts one or more of these plans. Some railroads have found the establishment of industrial colonies a profitable undertaking. The usual method employed under these conditions is the building of side tracks into an area sufficiently large to accomodate a number of industries.

The industrial agent, in co-operation with local commercial organizations, is constantly engaged in the promotion of other activities such as incubator buildings, development companies and town lot plans.

"The incubator building permits the location of industries in power buildings where expenses of operation are cut to the minimum, thereby making possible the existence of business enterprises which otherwise would find cost of production so high that they could not successfully enter the market and meet competition. Buildings can be constructed or remodelled to suit the purpose."[3] According to an investigation made by the Chamber of Commerce of the United States, industrial incubator buildings are suc-

2. Cf. Chamber of Commerce of the United States, "Community Industrial Financing Plans".

3. p. 43, S. H. Cley, "City Building."

cessfully operated by many chambers of commerce.[4] These are usually community enterprises financed by local chambers of commerce or similar groups. As an active member of these organizations, the industrial agent is usually a moving spirit in the development of such enterprises. In addition to incubator buildings, financed as above described, cities themselves frequently allot specific areas for industrial expansion.

The development company is a private corporation organized both for personal profit and for the industrial development of the community in which it operates. Its methods differ according to the requirements of various industries. Some concerns may need financing, others, buildings.

The town lot plan consists of setting aside a specific area and developing it for industrial purposes.

Other methods are stock selling, letters of recommendation, industrial guarantee funds and tax exemptions for a period of years.

A concrete example may be cited before leaving this subject. On February 28, a gentleman called on the Industrial Agent of the railroad, declining to give his name but claiming to be the representative of a large industry which was considering the erection of a plant in X City. He stated that his company would require about five acres of vacant land which could be served by siding facilities. The industrial agent went over the situation with this gentleman, calling his attention to several vacant pieces of land and furnishing him with maps showing among other things the location of these sites in relation to the harbor. This gentleman also desired certain information regarding switching rates on the commodity to be handled by his company in the event it should be received by boat and handled to the plant in railroad cars. This information was furnished him by a representative of the Freight Traffic Department. He left with the understanding that his company would look over the sites submitted and the Industrial Agent would hear from him further in event they were interested.

4. Chamber of Commerce of the United States, "Incubator Building."

This gentleman called again on April 18th. accompanied by two other representives of his company, all of whom declined to give their names or the name of the company they represented. They stated they had inspected several of the pieces of ground submitted and asked that the Industrial Agent secure further information as to the exact acreage and costs. On April 25th. the gentleman who had made the original call in February came in again and this time he made known his own name as well as that of the company he represented but asked that the matter be kept in confidence.

From April 25th. to May 22nd. the Industrial Agent was in almost daily touch with the industry in question, either by telephone or by letter, regarding the various parcels of land in which the industry seemed to be interested. He furnished information as to the prices at which the parcels of land were held, zoning laws, electric power rates, water and sewerage facilities. The industry finally decided upon a certain piece of land on the water front as the most suitable for its needs, and quoted a buying price not in excess of $6,000 per acre or $30,000 for the entire parcel. The industry also desired an option on the property for a period of sixty or ninety days in order that test holes might be driven to determine whether the nature of the ground would be satisfactory for its purposes, it having been ascertained that the ground was what was known as "filled land," that is land which had originally been covered with water. The option period was also to be used for securing necessary municipal permits for the erection of the plant as well as to work out a satisfactory side track layout. The option was finally obtained early in July upon payment of a sum of money, but the owner of the land increased the price about 16%. The industry, upon receipt of the option, employed a concern to drill test holes to see whether piling would be necessary to hold their proposed buildings.

Early in October the industry advised the Industrial Agent that it had decided to purchase the site in question and a tentative plan of side track layout was submitted. The railroad engineers prepared detailed estimates

and plan covering the proposed trackage and on November 13th. the construction of the track was authorized. The side track agreement was immediately submitted to the industry for its execution. Because of the fact that the industry in question was known to be a substantial one, with a number of plants throughout the United States, the railroad agreed to assume outright the expense of constructing its portion of the side track, rather than proceed with the usual custom of having the industry advance such cost, with the refund of the amount advanced on a per car basis. The Industrial Agent authorized the railroad's engineers to begin work on constructing its portion of the track as soon as the industry had signed the siding agree ment. The industry employed a local contractor to take care of its portion of the work of building the side track. The plant was completed and in operation in a little more than a year.

Industrial Surveys.—It has been shown how necessary it is for the industrial agent to know all the important factors affecting production and distribution in the communities along his lines.[5] As there are a great many cities in the territory traversed by the railroads, it is impossible for him to carry complete information about all of them in his head. In order to avail himself of systematic and correlated data, he makes surveys of all the cities which offer possibilities of industrial development. An industrill survey serves as an invoice of all factors affecting production in the community concerned. Such surveys either on the part of the railroad or on the part of the cities themselves are of comparatively recent development. The railroads have begun the practice of listing the advantages to be found in the cities and towns along their lines as an aid in the increase of their own profits. As many local chambers of commerce now make industrial surveys, the industrial agent is able to save considerable time by getting such surveys from them wherever available. He only makes surveys of his own in cities where those already made are not sufficiently comprehensive. For

5. See appendix II. Factors governing the choice of sites for industrial plants.

illustration, the statement of the secretary of a certain chamber of commerce is cited here: "We have had made for us without any cost an industrial survey by the X railroad company. They located within a year 871 new industries on the rails of that company. They have trained experts who go into a town, seven or eight in number. Six of them came to our town and stayed two months. They determined definitely what we had, what were our resources and our material advantages. They recommend to the factories located in other sections of the country that they can get another and better location."[6]

The main function of such surveys is to enable the industrial agents to supply information to their prospective clients regarding any community at a moment's notice. They also serve as guides for the formulation of a comprehensive plan for correcting unfavorable conditions and eliminating handicaps; for more fully and widely capitalizing present advantages; for developing available resources; and for coordinating effort so that, with a minimum expenditure of time and money, existing trade and industry will be fostered, new projects encouraged and the whole economic operation of the community balanced, stimulated, expanded and improved.[7] It is obvious that one cannot solve the problems of cities or make suggestions for a program of development without first familiarizing himself thoroughly with local conditions. The steps followed in such development work are analysis of the facts, recommenation of appropriate action based upon them and education of the community with regard to existing conditions and corrective and preventive measures. Such a comprehensive survey will help to develop existing industries and to promote new enterprises by enabling one to know about the related industries, needed industries, additional products for present industries, industries for the exploitation of naturel resources, complementary labor industries, general

6. National Association of Commercial Organization Secretaries, Proceeding of 1917, p. 86: Mr. Eubank of Parkersburgh, W. Va.

7. p. 1, "The Industrial Survey—An Economic Appraisal of the City or District." Technical advisory Corp., New York City, 1925.

industries and competing industries. A more detailed explanation appears in the foot-note.[8]

Sometimes, such surveys are made for the purpose of ascertaining the natural resources, industrial resources, condition of industrial operations, conditions of trade, social conditions and financial conditions. Or they may be

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8. p. 7-9, "Industrial Development Program for a Community." (A memograph) Metropolitan Life Insurance Company.

a. *Related Industries.*—Local manufacturers may desire the location-in town of certain kinds of industries which would take part of their output, use their by-products, or provide them with needed materials. Such proximity of allied or complementary industries saves time, freight rates and misunderstaudings.

b. *Needed Industries.*—A study of the products consumed and those manufactured in that general section of the country in which the city is located will discover many products which are being shipped in from long distances. A further study may indicate that many of these can be manufactured in the city.

c. *Additional Products for Present Industries:*—The two studies above may suggest products which could be manufactured profis tably by present industries in addition to their own products, or from their by-products.

d. *Natural Iudustries.*—A study of natural resources of the greater area of the city may indicate needed manufacturing activities to develop these resources.

e. *Complementary Labor Industries.*—If the survey shows that few women are employed in the city in proportion to male labor, then there may be opportunities for industries employing a large percentage of female labor. If the situation is reversed, then industries employing men would find plenty of labor.

f. *General Industries.*—Even the most careful study of what kinds of industries logically belong in the area will fail to discover many kinds of industry that would prosper in the city. That is why part of the publicity or promotion program should be directed to the industries of the nation in the hope of catching the attention of various kinds of manufacturers not in the survey recommendations, but who nevertheless may be attracted by the advantages of the city.

g. *Competing Industries.*—Sometimes local manufacturers desire to keep out other industries in the same line. It may be wiser to add a few more industries in the same line, so that skilled labor may be attracted, or buyers and sellers encouraged to call in the town more often, or better freight or financing facilities adapted to that line come into being. This is a problem that varies with each kind of business.

made for the purpose of choosing a site or to facilitate the preparation of briefs.[9]

The process of developing industries, whether new or old, is both slow and intricate. Local co-operation in this task is essent. The industrial agent works more smoothly where local civic organizations are already

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8. (continued)

Another angle is the monopoly of a natural resource by one firm only, where several firms could prosper and the combined group be sufficient to attract allied industries, and they others in turn, etc. In short, a one firm monopoly may prevent the development or incoming of a whole string of industries.

h. *Helping present industries,*—A truthful survey will discolse many faults in the town's economic structure, such as bad transportation, inadequate power or financing or housing facilities for present industries or for a possible influx of new industries, etc. The best way to get these remedied is for the industrial committee to announce that its efforts to get new industries are being impeded by certain of these disadvantages.

Discussions in the Manufacturers Council will bring out many things present industries want remedied, and full cooperation should be given all those which do not entail any special privileges.

9. p. 9, "Industrial Survey, G. C. Smith, Published by Industrial Club of St. Louis, 1930.

PURPOSES OF THE INDUSTRIAL SURVEY

a. *To ascertain the natural resources*, including mineral, agricultural, timber and nonmetallic products.

b. *To ascertain the induststal resources,* including available labor supply; both skilled and common; fuel; electric power; water proximity to raw and semi-finished materials and to markets; transportation facilities, both rail and water.

c. *To ascertain the condition of industrial operations,* including the cost of labor, fuel, water, power, materials and transportation; taxes; labor unions; labor turnover; seasonal demand for labor; fire protection; restrictive state and local legislation.

d. *To ascertain the conditions of trade, including* wholesale and retail establishments, their markets and sources of supplies; public markets; commission merchants, etc.

e. *To ascertain the social conditions*, including the cost of living as to foods, rents, clothing, fuel, etc; housing conditions; racial characteristics of the labor supply; schools and colleges; parks, playgrounds and other recreation facilities; theaters; churches; hospitals; hotels; outdoors sports; sidewalks and streets and their condition; street

actively interested in such projects. No industrial development work of any significance can be started without such a survey. The industrial agent, with the help of an industrial survey and the co-operation of the chamber of commerce, can educate the people of a community and make every one of them enthusiastic about getting new industries and boosting existing industries.

As the industrial survey is made entirely for the purpose of developing industries, it is used to answer questions regarding the cost of production. "Suggestions for outline of a city survey" by A. L. Bush is published by the United States Department of Commerce.[10] The outline covers the following factors:—

> History of growth, location, population, industries, community growth, power, labor, labor conditions, natural resources of surrounding districts, climate, transportation facilities, purchasing power, laws and regulations, banking and finance, building construction, metropolitan trading area, retail trade, wholesale trade, industrial and commercial associations, city government, expositions fairs and conventions, news-papers, living conditions, civic associations and conclusions.

At the end of his pamphlet, he gives a comprehensive list of available sources of material for each of these factors. It is advisable for anyone who comtemplates making such a survey to refer to this pamphlet. Other outlines equally useful are the following:—

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9. (continued)
cleaning metheds; sewers; city water; general and local factors affecting the health of the community; and general and local factors, such as elevation, humidity, barometric pressure, etc., affecting the individual efficiency of the workman.
f. *To ascertain the financial conditions,* including banks and trust companies; building and loan associations; investors, depositors, etc.
g. *To locate efinitely suitable tracts of land* for factory sites; for trade centers; for housing developments; for community centers.
h. *To facilitate the preparation of briefs* setting forth these conditions and submitting arguments and plans for the future development of the community, both socially and industially; to show what industries are needed and can be properly fostered to round out the community's economic development and remove the industrial slack existing.

10. Suggestions for Outline of a City Survey by A. L. Bush, United States Department of Commerce, Domestic Commerce Series No. 45.

Outline for a Master Community Survey, Civic Development Department, Chamber of Commerce of the United States, Washington, D. C.

The Preparation and Use of Industrial Survey, by C. P. Wood, Lockwood, Greene & Co.

Industrial Survey—An Outline for Communities and Manufacturers, G. C. Smith, Industrial Club of St. Louis, 1930

While at the present time, industrial surveys are made, for the most part, by local organizations, the railroads still engage in this work as occasion requires. When such a survey is undertaken by a city, the railroad industrial agent frequently co-operates in obtaining necessary data. A committee may include the industrial bureau of the chamber of commerce, local commercial and industrial concerns of long standing, municipal authorities and engineering experts. The railroad industrial agent is usually included in the last named group. The industrial bureau of the local chamber of commerce is the most important factor in the committee because it devotes its whole attention to the matter from beginning to end. It has usually made some surveys of its own and thus become familiar with local needs. With the help of techincal experts, local industrial and commercial interests and the city authorities, it should not be a difficult task for the bureau to make a comprehensive survey. The part played by the industrial bureau is important because it not only makes the survey, but afterwards makes use of the material so collected. It revises the data, frequently in order that those interested may know the financial, commercial and industrial conditions of the area at any specific time. Since people living in the locality are familiar with existing conditions and know what their wants are, it is always advisable to have them make the survey. However, when a community is incapable of doing this, it is necessary to seek technical advice. Much energy and expense can be saved if a general study is made of the data already available before the actual survey is begun. A great deal of information may be obtained from municipal, county and state governments. Useful facts can also be gotten from the United States Census and other federal sources. A bibliography of

seleced publications which are useful for the purpose of making surveys can be found in the publications of A. L. Bush and G. C. Smith mantioned above.

A good survey shows the liabilities as well as the assets of a community. Local prejudice and self interest too often blind a city to the existence of easily remedied handicaps to prosperity. Here, the railroad industrial agent is in a good position to assist by participating in the survey. He has a better perspective of values established by comparison with other cities and he can give the benefit of a nation-wide point of view of everything covered.

After a survey has been made, the data is usually published for distribution. The publication may take various forms: card files; loose-leaf binders; bound books; seperate pamphlets on various factors and advertising leaflets. Each of these forms has its advantages, though the loose-leaf system is best adapted to this purpose because the data are so changable that frequent alteration must be made. Besides, in a loose-leaf binder, the material can be arranged according to the needs of various prospects.

The railroad industrial agent makes a survey only when local organizations have failed to supply him with adequate data concerning their communities. He gets his information by visiting the city or by corresponding with local authorities. After the survey is completed, he usually gives the local chamber of commerce a copy of his finding. A great deal of favorable publicity is obtained for the railroad in a small town by making a survey of this kind. Interest in industrial development is thus aroused. The survey is loaned to people interested in the town either for industrial development or for other purposes. Care is taken by the railroad not to arouse the jealousy of other towns which have not been surveyed.

Surveys are kept up to date by requiring all station agents to make reports regarding industrial and commercial conditions in their localities. Such information is easily obtained by these officials in the course of their daily routine and at the same time is most useful to the industrial

agent. The information regarding stations usually consists of the following items: the condition of the station, the condition of traffic, claims on hand, freight handled in the station, industries, facilities, elevators, warehouses, farming activities, other railroads, condition of business and industry, unclaimed freight, team tracks and approaches. They also report regarding the industries in their territories, giving information concerning the nature of local business, plant operation, capacity of production, locations, the names of plant representatives, inbound material, car supply and warehouse facilities. Freight representatives also send in reports about the industries with which they have dealings.

In the above, the discussion is confined only to the requirements of general surveys. Occassionally, however, the industrial agent undertakes some more specific investigations for a client who desires to know such facts as the condition of labor, the nature of water supply and the desirability of a site. The industrial agent may make an inspection trip by walking along the right-of-way of the railroad in order to learn the specific condition of a site or the best method of developing the land adjacent to the railroad. For his own information, the industrial agent estimates the business of competing transportation agencies, the volume and nature of traffic originating in or destined for a certain locality, the condition of the railroad facilities serving the industries, natural resources waiting development and available sites.

Preparing Towns for New Industries.[11]—Any town wanting to increase the number of its smokestacks must prepare for the reception of new industries. Improvements made always repay their cost manyfold. An industrial survey serves to reveal the defects of a city. Some of these are susceptible to improvement. They fall generally under the following heads: Lack of labor supply, transportation facilities, available factory sites or buildings and adequate banking facilities. Other disadvantages frequently encountered are high tax rates, power rates or rent and prices

11. Questionnaire: In answer to the question: "Do you co-operate with local organizations in such matters of purely local interest, for the benefit of established industries?:—

of real estate.[12] Each of these factors is, to a greater of less degree, subject to improvement. When the obstacles are so great as to hinder the industrial development of a community, the industrial agent should make clear to those interested in the welfare of the community that it is their duty to correct these abuses. Such men having become accustomed to these conditions, often cease to notice the absence of the facilities just enumerated.

When a company seeks to locate in a city and encounters such obstacles as unpaved streets, lack of wharfage facilities or similar deficiencies, it may be necessary for the municipal government to remedy the defects. The power or public utility company may have to alter the water, fuel or power supply, extend trolley lines or change the rates. Prices of land may have to be lowered or several prices of property may have to be consolidated. The railroad, aside from laying side tracks, may have to rearrange the main line which runs near the plant. The city and the chamber of commerce co-operate in rectifying adverse conditions and so meet the objections of prospective industries. A city that manifests a spirit of coperation and stands ready to improve undesirable conditions has a better chance of getting new industries.

Even conditons irrelevant to production, sometimes, makes great deal of difference. The following factors may influence the choice of a city as a location for an industry:

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11. (continued)

(The attached figures arranged to indicate "yes", "no" and "no answer. In this case, 34 answered "yes", 27 "no" and five did not answer the question.)

a. Improve civic conditions. 34-27-5
b. Employment 28-32-6
c. Trade promotion. 33-37-6
d. Industrial information service to advise in problems of traffic, management, engineering, accounting, etc. 31-30-5
e. Improve industrial relations and working conditions 29-31-6
f. Advice during financial difficulties 14-46-6
g. Arbitration. 10-50-6
h. Aid in securing better public utility services 31-29-6
i. Create new industries to use by-product. 50-10-6
j. Beautify the town. 28-32-6

12. See appendix II, Factors Governing the Choice of Sites for Industrial Plants.

A good city government; a sufficient number of good schools, libraries, parks, playgrounds, churches, and industrial and commercial establishments; a public utility company that renders efficient service, an enthusiastic association of commerce; harmonious industrial relations and a strong civic spirit. Many improvements which can be made at small expense create a favorable impression in the mind of the new comer desirous of an industrial location.

These things are all too often lost sight of by local interests until brought to their attention by some expert such as the industrial agent. It should be easy to understand the importance of creating a favorable impression in the minds of such visitors through a fine railroad station, well lighted streets, well furnished hotels, high class stores, comfortable and adequate public transportation, well kept up residential sections with many home owners and reasonable taxes.[11a] The industrial agent often suggests to the city the need for cleaning up unsightly places or beautifying the city in general.[11j] Many industrial agents participate in the zoning and planning activities of cities on their lines.[13] When civic conditions need improvement [11a] or public utilities should be extended, [11h] the industrial agent points out these necessities to the proper authorities. The railroad may lead in the promotion of domestic and foreign trade, for the extension of the market for local products.[11c] Trains may be run to or from nearby communities for trade extension tours. For extending local markets, the industrial agent devises such methods as advertising, encouraging home consumption and exhibition of home products. He suggests remedies for industries troubled by such problems as those arising from employment conditions,[11b] labor troubles, industrial relations, improvement of working conditions,[11e] arbitration of disputes.[11g] financial needs during periods of expansion, reorganization relocation, lack of sufficient capital,[11f] elimination of waste and use for by-products.[11i] The industrial agent may assist in solving problems that arise in the fields of en-

13. Questionnaire: "Do you advocate proper zoning in order to conserve industrial acreage:" 57-7-2

See also Chapter II, Section on conservation of industrial acreage.

gineering, accounting, and management, drawing on the various departments of the railroad for necessary information.[11d] He may furnish traffic information, give instructions regarding packing, shipping and loading.[14] The above activities are only a few of the lines along which the industrial agent establishes himself as a leader in the various communities. He, of coures, does not perform all of these tasks in person. Many of them are taken care of by the people themselves. His function is that of suggesting desired improvements which will be beneficial to all concerned: to the city, established industries, new industries, local residents and finally to the railroad itself.

Care of Established Industries.— After the industrial agent has succeeded in locating a new industry along the lines of his railroad, the question may aries as to whether the relationship between the agent and his client has come to an end. Is the work of the industrial department completed, once the industry has decided upon a site along the railroad it represents and a siding has been installed? Apparently this is just the beginning of their relationship. The industsy, during its search for a site, has come in close contact with this department of the railroad. The industrial agent seeks to continue this relationship and encourages the manufacturer to avail himself, at all times, of the facilities of the industrial department. The industries usually deal with the railroad through this department because it understands their point of view. In turn, the department manifeste a contínting interest in the welfare of its clients. Any matters that the industries take up with the industrial department are handled by the industrial agent himself. Where he cannot do this, he refers it to some other employees of the company.

Established industries are fully as important as new ones. It has already been stated that of all the leads which come to the attention of industrial agents, only

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14. Questionnaire: "Do you attempt to prevent freight claims by educating the shippers?" 32-33-1

See Chapter II, Section on prevension of freight claims.

two percent of them are finally located on their railroads. Instead, therefore, of spending all of their energy in endeavoring to locate new industries, they can accomplish much more by devoting their attention to those already established.

Unfortunately, there is little popular appeal and nothing spectacular in the internal development of existing industries, but there is solid growth. Many industrial departments begin with the sole purpose of getting new industries, going out to sell the territory traversed by the railroad as it is, without attempting to improve the facilities for existing industries. From past experience, there is no doubt but that to foster local industries, help finance concerns already established encourage local capital to back local industries and to see that every facility and aid is given to existing industries are the normal channels for industrial development. Where existing industries are prosperous, they will increase their plants and production and the number of employees on their payrolls. Nothing speaks better for a territory than the fact that established businesses are investing further capital. Industrial development organizations are beginning to realize the fact that it is more important to develop the plants already established than to be constantly dickering with prospects of doubtful value.

Some industrial departments neglect established industries leaving their welfare to the local chamber of commerce. Many towns, however, do not have any organization capable of rendering such services, as may be necessary from time to time, to the industries within their limits.

Others may argue that the new industries are taken care of by the other departments of the railroad such as the traffic department and the operating department. It is plain that the men in these departments are not in a position to render such services. The solution of the problems of established industries are in many instances outside of the scope of these departments.

New industries entering the territory of the railroad are generally of three kinds: an entirely new vanture, a branch of an established concern or an established industry moving from some other territory. All of these require

special care. The process of moving an industrial plant from one place to another is similar to that of moving household effects. The only differenee being that the former is a more difficult operation. Anyone who has had experience with moving will appreciate this fact. When an industry enters a new territory, it requires the help of the industrial agent. It often needs financing. In order to avoid great losses, it is necessary to achieve the greatest efficiency. Being experienced in traffic matters, the industrial agent can often be of service to the industry. He can suggest the best routings. He can also advise as to methods of financing and in many other matters.

A new industry is not familiar with the railroad. In order that it may make the best use of the service of his company, the industrial agent introduces its representatives to the various departments of the railroad with which they will have to deal. The industrial agent usually transmits to the traffic department detailed information regarding new industries. Where a product is to be manufactured that is new to the market, he assists in establishing a rate that will be fair both to the industry and the railroad. The industrial agent may suggest where, along his lines, raw materials can be obtained. He is often called upon to help in the solution of traffic, warehousing, shipping and other problems. It is impossible to lay down a general rule for the attitude of an agent toward an established industry. Conditions vary in each case. It is the custom of one such agent to keep in touch with the industries in his territory. This might well become a part of the routine of every such agent.

Many industrial agents render services to established industries along their lines either independently or in cooperation with local chambers of commerce. In regard to transportation matters, many chambers of commerce maintain traffic and transportation bureaus. The industrial department is in a position to render assistance in this type of work. Established industries require help in matters pertaining to rates, claims, movement of shipments, switching, car supply, package car service, interurban service, extension of local pick-up delivery limits of express

and mail, securing favorable commutation rates to and from industrial areas, assistance during times of freight embargo and fuel shortage.

Sometimes, the industrial agent may offer suggestions as to the operation of service bureaus, changes in factory organization, form groups for the study of cost accounting; for training superintendents and foremen in more up-to-date production methods; accident prevention; reduction of fire hazards and personal injuries; methods for lowering insurance rates; promotion of vocational and commercial education. He arranges meetings of manufacturers, executives and employment managers for the exchange of ideas, at which experts in these matters deliver addresses. The industrial agent can usually find some men in the departments of his own railroad who are well versed in such matters as factory management, plant operation, accounting and allied subjects.[15]

Conservation of Industrial Acreage.—Modern methods of developing industrial acreage involve a large amount of waste. One phase of the work of the industrial agent is the prevention, or at least reduction to the minimum degree, of such practices.[16] Land adapted to industrial development is becoming scarce. There is a constantly growing need for the conservation of this type of acreage. The industrial agent sees to it that such land is used to the fullest degree of efficiency. In addressing the members of the American Railway Development Association, the industrial agent of Missouri-Kansas-Texas Lines said:[17]

> "Embarrassing it is, and we may add serious, for the railroad or the community having the opportunity of locating a revenue-producing industry to find itself without a suitable or satisfactory location. These opportunities, which occur none too often, are of immense importance to the railroad which is prepared to provide the industrial site needed. The wisdom of conserving and of developing real estate adjacent to railroads, adequate to meet the prospective industrial requirements of the respective territory served, needs no comment. I think most of us find

15. Questionnaire: "Industrial information service to advise in problems of traffic management, engineering, accounting, etc." 31-30-5
16. Questionnaire: "Do you advocate proper zoning in order to conserve industrial acreage?" 57-7-2 (57 answered "yes", 7 "no" and 2 failed to answer the question.)
17. pp. 43-49, 1930 Annual Proceedings of American Railway Development Association.

the railroads we represent, at least at numerous points, wanting in available industrial sites even for present needs. Consequently, the importance of wisely conserving what remains available, and of developing it in a manner that will serve present and future requirements most adequately is of major concern, and presents one of the real problems in the science of factory location."

The industrial agent is constantly on the lookout to see that highways constructed along his lines do not separate the railroad from the adjacent industrial area. Highways built so close to the tracks as to leave only a narrow strip of land between the two roads force an industry using such an area to build its plant along the side of the railroad at great length, where otherwise it is able to build at great depth. By taking up too much frontage along the railroad, one such industry prevents other industries from making use of the hinterland. As traffic increases along such a highway, objection would inevitably be raised to the building of a side track accross it. This renders such land industrially useless. In order to prevent these unfortunate occurences, the industrial agent educates the people of the community, chambers of commerce, local and state authorities regarding the disadvantages of this method of highway construction.[18]

Another type of grievence often arises from the shortsightedness of power companies which build their transmission lines and supporting towers across railroad tracks in such a way as to decrease the value of the industrial area. Again, large sections suitable for industrial purposes are given over to non-industrial uses such as playgrounds, athletic fields, community centers, armories, cemeteries and similar institutions. The majority of industrial agents, realizing the gravity of this situation, are actively striving to conserve our remaining industrial areas. Practices vary in individual cases. The methods and pracatices commonly used by the industrial agent are described in the footnote below.[19]

18. Cf. p. 10, "The Conservation of Industrial Acreage" G. E. Fetterman, Industrial Agent of Pennsylvania Railroad, May 1929.
19. pp. 43-49, 1930 Annual Proceeding of American Railway Development Association.

METHODS AND PRACTICES COMMONLY USED

"The effectiveness of methods and practices commonly used by various railroad development departments is determined largely by

Footnote 19 *(Continued)*

the alertness of the department staff members, their means of keeping informed as to what is taking place with respect to industrial property available to their railroad, the character and extent of their contact with industrial realtors, land owners, financial interests, Chambers of Commerce, and city officials concerned, and also the heads of their own railroad departmental organization. For this reason, while the same practices may be common to different roads, the development department of one road will succeed while another goes to sleep at the switch.

These practices are sufficiently covered in the fellowing excerpts quoted from six of the replies from my inquiry to require no further comment:

(1) "We have wherever possible made a strong effort to impress upon those with whom we come in contact in our line of work, such as city representatives, Chambers of Commerce, real estate operators, etc., the desirability of conserving property adjacent to or lying close by railroad tracks for the purpose for which it should naturally be intended, i.e., the location of manufacturing plants, warehouses, etc., rather than have them permit any residential development, pointing out our belief that such development would not be a paying proposition and would simply destroy opportunities in many cases for the communities to avail themselves of a good manufacturing plant which desired to locate but possibly could not come into their midst on account of lack of proper sites."

(2) "On the whole, there is very little a railroad can do, outside of exercising persuasion, to conserve adjacent industrial property unless it purchases the property. In dealing with this problem, especially in the larger cities, we have made it a point to first see that all property adjaeent to our rails that should be included in zoning ordinances as iudustrial property was so designated; second, co-operated with the various property owners in the layout of industrial trackage for the development of their districts; third, if the property owners were financially unable to finance the construction of warehouses, we interested connections who will be able and willing to do so; fourth, trackage in industrial districts was so planned as to conserve frontage along the railroad right-of-way."

(3) "At some of our active points, both in the north and south, we are quite short of industrial ground suitable for incoming concerns. Along lines of conservation, we are careful in closely investigating tonnage and revenue to be derived in the leasing of ground. In other words, it is not our intention to dispose of such industrial property to other than tonnage-producing concerns."

(4) "As to privately owned property, I feel that it is the problem of the local community to endeavor at all times to have available industrial sites with convenient trackage layout, and we try to impress upon the local Chamber of Commerce the necessity of watching this situation for their own protection. We find that in most of our important towns the local people are alive to the importance of having at all times available industrial sites, and in recent years especially the situation has been watched rather carefully, and, generally, so far as our territory is concerned, the situation has been well taken care of."

The industrial agent watches the operation of municipal zoning ordinances with extreme care. When a city is drafting its policy in this matter, he endeavors to be made a member of the committee in charge of the work. Once on the committee, he will be able to present the arguments of the railroad for safeguarding industrial areas. If the industrial agent is not himself a member of this body, he makes every effort to see that there is at least one person on the committee who is conversant with the facts and issues involved.

Once such a zone has been set aside, all subsequent industrial development is concentrated within it. Transportation, power, water and other facilities are provided with ease. Laborers can be housed comfortably and conveniently and allied industries grouped together. It is impossible to over-emphasize the importance of proper indudustrial zoning. There is no doubt about the value of zoning to the conservation of industrial acreage along the railroad. Statement from various industrial agents in support of this contention are quoted in the footnote below(.[20])

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19 (continued)

(5) "insofar as we are concerned, our efforts in the conservation of property adjacent to the railroad for industrial improvement has been limited to discussion with various real estate operators. In addition, the matter has been called to the attention of our engineering department in an endeavor to avoid destroying possible industrial sites in connection with the construction of new, hard-surfaced highways. I believe all of the railroad people should give very careful consideration to the conservation of our own property. I think the railroad have been negligent in this respect, as my observation is that at many points on our railroad, as well as on others, very valuable industrial property has been set aside for the location of section or bunk houses and their outbuildings, and these errors, of course, should not be perpetuated."

(20) Ibid.

"Permit me to quote again excerpts from letters received with reference to the value of zoning:

(1) "When the engineers are cousulted with respect to city zoning ordinances it would be well to let the industrial man have an opportunity to go over the proposed zones to see that valuable industrial property is not so restricted as to render it practically worthless."

Prevention of Freight Claims at Their Sources.—One of the important duties of the industrial agents of many railroads is the prevention of freight claims at their sources. This is accomplished by instructing the industries in the proper methods of packing, loading and shipping. The most common damages are those due to rough handling of cars, unlocated damage, loss of entire package, delay, defective or unfit equipment, unlocated loss of other than entire package, wreck, and robbery of entire package or other than entire package. Some causes of minor importance are temperature failure due to improper refrigeration or ventilation, damage due to improper handing, loading, unloading or stowing, temperature changes due to freezing or heating failures, concealed damage, concealed loss, errors of employees and fire or marine loss or damage.[21] The railroads have tried their best to avoid damages arising

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20 (continued)

(2) "Another industrial agent advises that they take every opportunity to impress upon city represenatives, Chambers of Commerce, real estate brokers, and others interested, the desirability of their taking an active interest in the work of zoning committees in their various communities, calling attention to the fact that, once a zoning committee had designated a certain parcel of property for residential purposes, in many instances it would be difficult to make a change permitting of locating plants or warehouses in that particular section."

(3) "There is a different method of dealing with this situation for any given set of circumstances. Probably the most effective way of combating the diversion of industrial property into other channels is through the enactment of city zoning ordinances. This method safeguards a railroad against sub-divisions and developments of that kind. The railroads, however, are themselves responsible to a great extent for the waste of industrial property due to a common failure to provide for future development by the construction of industrial lead tracks to serve property considerable removed from its right of way before the erection of structures on abutting property makes this impossible."

(4) "Insofar as property owned by the railroad is concerned, it is our fixed policy to hold intact all such property available for industrial development, provided there is no conflict with local zoning ordinances where possible to do so."

It seems apparent that zoning, while yet in its infancy, is making sound progress, and affords industrial development men a practical means of conserving suitable industrial property for industrial development purposes."

21. Cf. p. 303-9 G. G. Huebner, Railroad Freight Service.

from the rough handling of the cars or leaky roofs and bad order cars. Carelessness or inexperience on the part of shippers, however, contributes directly or indirectly to many of the damages mentioned above, particularly those classified as "unlocated" and "concealed". Most damages can be prevented by instructing the shippers in the proper methods of packing, loading and shipping their commodities. A concise statement of the work of this nature is quoted in the foot-note below.[22]

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22. p. 35-43, Industral Directory and Shippers' Guide, New York Central R. R., 1920-1921, "The problem of Freight Claims".

Freight Claim; There is probably no point of contact between the common carriers of this country and the shipping public which is productive of more controversy and embarrassment than that arising from the consideration and adjustment of claims due to the loss of or injury to freight and the application of erroneous rates and weights in the assessment of freight charges.....

Packing Freight; One of the most prominent causes of damage to merchandise freight is the indaequacy of packages or containers, either in construction or material, to withstand the several handlings they must receive by cartmen and warehousemen in their movement to destination. The increasing cost of material for boxing and crating has doubtless influenced the adoption of less or lighter material that only appears sufficient at the commencement of its journey. Add to this the increasing train loads to meet heavier volumes of traffic, the demand for faster movement of freight, the extension of trade areas necessitating longer hauls and more transfers, and we find a reliabe analysis of the losses carriers are held accountable for.

Shippers who fully realize that the payment of claims is small compensation for the indirect loss their business must sustain, who appreciate the importance of so protecting their shipments that damage will not result from the ordinary treatment they must be expected to encounter in cartage and transportation, and who so secure their packages that pilfery may not easily be committed without leaving evidence of the act, seldom have occasion to make claims, and experience no difficulty in obtaining prompt settlement of those they present.

The proper packing of freight is a form of insurance to which the consignee is entitled and which he should require at the hands of his shipper.

The proper preparation of shipments to enable them to withstand ordinary wear and tear of transportation, is a duty which the shipper owes alike to himself, to the customer whom he is serving and whose patronage may be assumed to be valuable to him, and to the carrier who is trying to serve both.

The failure to properly prepare shipments for transportation furnishes a large contribution to claim accunts, as well as delay,

22 (continued)

expense and dissatisfaction to the shipper and consignee. This would be greatly minimized by the exercise of care to see that material of sufficient quality and straength is used in the construction of bags, boxes, bales and other containers, and, in the case of goods shipped in straps, that the individual packages are securely held in place, having in view of the contents which it is desired to protect.

Preparation of Freight: The carriers' classifications contain numerous specification, restrictions and conditions relative to the preparations of freight for transportation, and shippers should consult and be familiar with the regulations applicable to the class of freight to be forwarded, in order to avoid its rejection by the carrier, or its transportation at a higher rate because of not being boxed, crated, baled, wrapped, or othewise protected, in accordance with these provisions.

It is to the advantage of all concerned that freight be rejected by the carrier when manifestly not in condition to withstand the handling and impacts that are incident to ordinary transportation, or when liable to deteriorate during regular movement to destination. Package and packing specifications are based upon extensive tests as well as experience in respect to the commodities to which they apply, and when fully observed by shippers, damage in transit and claims therefore are greatly reduced.

Preparing Cars for Loading: In the loading of carload freight by shippers, the following precautions against the use of defective or unclean cars should be taken:

Examine interior of car for any defects of roof, sides, or floor that might cause injury to the freight to be loaded therein.

Remove protruding nails and cover bolt heads if liable to come in contact with and damage the frieght.

Reject cars that cannot be suitably conditioned without mechanical or other extensive repairs.

Stow freight securely, blocking or bracing such articles as are liable to shift in transit.

If freight is of a nature liable to injury by rain of snow, and car doors are not perfectly tight, leave space in front of doors or place batten around them.

Marking Freight: To insure prompt and safe delivery of goods, it is required by carriers that the shipper plainly, legibly and durably mark each and every package, bundle or piece of less than carload shipment, showing the following information.

Consignee's name and bill of lading destination in full.

When consigned to a place not located on the line of the carrier, packages should be marked with name of station at which consignee will accept delivery.

If shipment is consigned to order of shipper, the works "To Order," or "Order Notify," should invariably be shown on each package.

The Committee on Freight Claim Prevention of the American Railway Association with its freight Container Bureau distributes bulletins covering the results of its investigations. The Trunk Line Freight Inspection Bureau also issues circulars. The Forest Products Laboratory of the United States Forest Service makes studies and informs the public of its conclusions. Rules 5, 6, 40 and 41 of official classification are concerned with packing and marking. All these instructions when carefully followed result in material reduction of freight claims. The industrial agent is the proper source of adequate publicity in this matter. He explains the prevention of damage and the benefits resulting therefrom, such as rate reduction. Rates are high on commodities for which the railroads are frequently called upon to pay damages. As claims become fewer, the rates on such commodities are materially decreased. A great deal of damage can be prevented where shippers are instructed to avoid offering shipments in the following conditions: Overloaded, without marks, insecure or weak, with loose boards, improper tags, requiring recoopering, contents rattling, insufficient nails, old consignment marks, illegibly or not properly marked, consignee or desination abbreviated, in fiber boxes damaged or unsealed, in second-hand boxes or crates unless in perfect condition.[23]

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22 (continued)

Marking packages with name and address of shipper, preceded by the word "From" is of grest assistance to both shipper and carrier when shipment becomes astray or is unclaimed by consignee.

Marking should be by brush, stencil, crayon, or rubber stamp. When label or tag is used it should be securely fastened and in the case of pieces or bundles of metal, tags should be fastened by wire.

All previous shipping marks must be removed or obliterated.

These recommendations are intended to insure the indentity of owner under all circumstances of transportation, and to prevent confusion with similar shipments at transfer points and destination, and should be carefully observed by the shipper.

23. Questionnaire: "Do you attempt to prevent freight claims by educating the shippers?" 32-33-1

Determination of Policy in Regard to the Improvement of Service and Facilities and Extension or Abandonment of Lines. —Increase in the volume of traffic naturally follows the introduction of new industries. The industrial agent sees to it that they are served with adequate facilities and provided with sufficient equipment for handling their merchandise including rolling stock and station facilities. Sometimes, the railroad may feel the need of extending existing lines in order to develop a certain territory or some specific proposition such as mineral deposits, timberlands and other natural resources. The industrial agent, being familiar with local conditions, is the logical person to suggest the proper policy in these matters. His opinion is solicited not only when the railroad contemplates installing additional equipment and extension of its lines, but also before existing lines and equipment are abandoned.

Industrial agents always have an inventory of the facilities of their lines so that they can inform the industries regarding them. Some make a practice of furnishing this information to all the industries on their lines. When they distribute publications such as pamphlets and industrial guides, some space is devoted to advertising the facilities of their roads. When they meet the shippers, they tell them about the facilities of their roads and emphasize the punctuality of their freight service. The industrial department is always anxious to supply time schedules and quote rates to any interested industries. It points out the locations on its line of various handling facilities, such as cranes, derricks, track scales, warehouses, and icing facilities. It strives to hold its patrons by inducing them to make the fullest possible use of these conveniences. It also has much to say about the passenger service of the road.

Not being satisfied with supplying this information through the distribution of printed matter, the industrial agent also invites inquiries. Adverisements are put up in conspicuous locations in freight and passenger stations, on freight and passenger trains and in other places where they meet the eyes of the shippers. Printed matter can be enclosed in letters. When new industries are located along the railroad, the industrial agent has someone—a

solicitor, for instance—inform them regarding the freight facilities offered by his lines. The warehouse superintendent, will be instructed to visit the new industries for the purpose not only of selling space in the railroad warehouse but also of giving expert advice when a new industry has built or proposes to build warehouses of its own. The industrial agent also explains the special services offered by his road scuh as ferry car service, container cars, store door delivery, switching, transit and other special privileges.

On some roads, all these functions may be undertaken by some one other than the industrial agent, but he is responsible for having these details attended to. Adequate information must be given to new industries. Ample facilities should be provided. Although the actual construction or improvement of these must be authorized by proper authorities and the construction work done by the operating department, nevertheless, the industrial agent is always consulted in these matters. He either initiates such propositions or passes upon their value. He may object to new construction because of local commercial, economic or social conditions, with which he is familiar. He knows the industry and the locality and has a long vision regarding potential traffic. With proper judgement, most of the improvements or additions which may seem rather costly can often be converted into profitable investments.[24]

An Analysis of Printed Matter Sent Out.—Perhaps the most frequently used method for obtaining publicity for the department is through printed matter of various types, an anlysis of which follows: Thedepartment sents out material of various kinds including advertisements, circular letters, leaflets, magazines, shippers, guides, industrial directories, commodity indlxes, maps, pamphlets and surveys of cities.

Advertisements.—Direct results are seldom obtained from advertisements of the industrial departments, except where they appear in a medium circulated among a definite class of readers who are potential prospects. Therefore, industrial or trade papers have been found preferable to periodicals of general circulation for this class of advertisement.

24. Questionnaire: "Do you participate in the determination of policy concerning the improvement or abandonment of various shipping facilities, equipment and service?" 49-17-0

During 1928, the Review of Reviews established a special section for advertising industrial properties. Such projects, however, are rarely undertaken. Whenever there is an opportunity to advertise the industrial department, the agent avails himself of it to the fullest extent, as it offers an unusual medium for reaching a wide group of possible prospects. The consensus of opinion among industrial agents seems to be that advertisements, especially those in periodicals and newspapers of a general character, are not particularly effective, although this method has been and is being frequently employed. Besides being used as a means of broadcasting the service of the department, advertisements generally emphasize particular aspects of the railroad service policy such as industrial opportunities, fuels, markets, ports, equipment, connection with other railroads and fast freight arrangements.

The industrial agent often distributes advertisements and pamphlets for such organizations as chambers of commerce, warehouses, real estate brokers and others advertising services or properties. In doing this, the industrial agent is very careful, as the fact that he distributes it might be construed as placing the endorsement of the railroad upon such goods, services or properties. Once a precedent has been established, many firms and organizations will insist that their claims should be sponsered by the railroad. Matters of this sort must be handled with extreme care, lest both the company and the agent be accused of favoring one organization or locality at the expense of others equally entitled to such notice.

Circular letrers and leaflets.—Circulars and leaflets when used as mediums of advertising, have the advantage of greater flexability. Similar subject matter may be so treated as to appeal to specific types of readers. Such material can be sent to civic organizations, real estate brokers and employees, to solicit their co-operation. This method may also be used to disseminate specific information regarding pending improvements or to emphasize the possibilities of certain raw materials found in the territory

covered by its lines. Articles and talks about the industrial department are often reprinted for distribution as circular or leaflets.

Magazines.—Many development departments publish agricultural magazines, but few of them as yet have undertaken this form of publicity for the industrial services. An analysis of such publications as are distributed by the industrial department shows that they follow a uniform trend. Their main purpose is to make known the functions and activities of the department. They contain articles emphasizing the importance of location and point out its factors. An article may show the superiority of a railroad over its competitors in respect to service, equipment or opportunities. Others describe various important industries along its lines, outlining the development of the industries and describing their production methods. It is too expensive for most industrial departments to maintain magazines of their own. In view of this fact, the industrial agent may adopt a less costly alternative. For instance, he may contribute articles to outside magazines or papers, reprinting them for his own distribution. By this means they obtain a wide circulation and at the same time the industrial agent may circulate copies of them among those whom he especially desires to reach. When the railroad has an agricultural magazine or an employee's magazine, the industrial agent can run articles in these and send copies to any person he believes would be interested.

Maps.—There are several kinds of maps that the industrial agent can distribute, namely system maps, industrial resource maps, power maps, and city maps showing railroad tracks and sidings. These maps may take the form of a wall map, a desk map or a small map for ready reference.

Pamphlets.—The industrial agent often distributes pamphlets which deal with about the same subject matter as mentioned in connection with advertising, circulars and magazines. The only difference is that the pamphlets are usually written in a more elaborate style and discuss the subjects in greater detail. The size of a pamphlet is flexible. It may consist of a few pages or it may be expanded into a thick volume. It can be a complete text

on the science of location, a directory of the diversified industries along the line, a catalogue of the industrial opportunities in the territory, a handbook of railroad services, a study of industrial geography, a survey of natural resources, a descriptive booklet of the territory covered by the line, instruction in methods of loading and packing to prevent freight claims or a report of other specific investigations.

Reports and other Publications Distributed to Members of Own Railroad.—The industrial department also publishes reports and other material designed for circulation among other departments of the railroad. These consist of traffic summaries, reports and other material which will be more fully described in connection with the discussion of traffic research.[26] The annual reports of the industrial department are sometimes distributed to the general public. Reports on its work are usually made to the stockholders. Occassionally, industrial agents contribute articles to magazines discussing the achievements of their departments.

Survey of Cities.—When the industrial departments make surveys of cities, their results are not usually intended for publication. However, when demand for them arises, copies are distributed to the parties interested. As a rule, a copy of such a survey is given to the local chamber of commerce as soon as it is completed.

Shippers' Guide or Commodity Index.—In order to induce the industries and dealers within the territory to secure their supplies from communities served by its lines, the industrial department publishes a shippers' guide, an industrial directory or a commodity index. The shippers' guide contains all the names, addresses and classifications of the manufacturers, jobbers and dealers served by private sidings of the railroad according to (a) commodities, (b) divisions or cities, and (c) alphabetical arrangement of names of the firms. The industrial directory gives only a list of industries while the commodity index classifies the names of concerns according to the commodities manufactured by them. The shippers' guide is a more

26. Cf. Chapter V, Traffic Researcher.

elaborate and a more useful reference book than either of the other two which are usually less informative. However, this is not susceptible to frequent revision. Fundamentally, all three guides serve virtually the same purpose, namely to make the industries on the line better acquainted with one another. The purpose of compiling such a guide, according to G. E. Bate of the Delaware and Hudson Railroad is the promotion of trade relations:[26]

GETTING IN TOUCH

In the old days, every man know every other in his community and how to reach him quickest. It was one of the few advantages which they possessed over us today. The official freight shippers' guide and industrial directory of a railroad company is specially designed to overcome this single disadvantage of non-acquaintance. It is published to promote trade relations and the interchange of commodities. It tells:

Who's who industrially—
What he makes, sells, duys—
How to ship goods to him—
How to get goods from him—
Sources of raw materials—
Special advantages for new industries.

In addition to giving information about industries and commodities, it is not unusual to mention various other items of public interest in these publications. They ususally include lists of officers and traffic representatives of the railroad; freight facilities on the line; special services and privileges; a description of the industrial and agricultural opportunities of the territory traversed by the railroad; a description of the work of the development department; a few maps and several articles.

That the shippers' guides are useful is evidenced by the great number of comments of appreciation they receive from their readers. The chief hinderance to their more frequent publication is that they are too elaborate. The cost of printing them is usually so high as to prevent their wide distribution. A simpler type of such guide is sometimes printed in loose-leaf form which considerably reduces

26. p. 7, Freight Shippers' Guide, Department for Industrial Development of the Delaware and Hudson Company, 1922

the expense of publication. Where the cost of publication is low, frequent revision is also greatly simplified. When an inquiry is received, greater economy can be attained by sending to the interested party only the section of the guide containing the requested information.

Shippers' guides are distributed in the following manner: Copies are sent to all executives, traffic representatives and development agents of the railroad. Copies are also sent to large industries, usually, to the president, traffic manages, secretary or purchasing agent. Large and imoportant banks, business concerns, public utilities companies, warehouses, grain elevators, storage companies, industrial engineering firms, real estate brokers, trade associations, the press, express companies and other transportation agencies are included in such mailing lists. Wide publicity is given such bulletins so that parties desiring them may send in their names. Copies are exhibited at important freight stations in club cars, parlor cars and observation cars.

During the preparation of this guide, an increased office force is needed. Co-operation from other departments is necessary. Notable among these are the traffic department, the publicity department, station agents and the operating department.

CHAPTER III

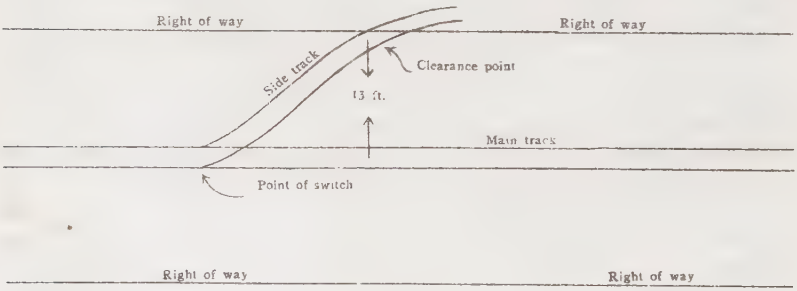
Industrial Engineer

In small railroad systems, the industrial agent usually handles details regarding the construction of side tracks. In the larger systems, where there is much of this type of work to be done, industtial engineers are employed. The nature of the work is similar regardless of the title of the official having it in charge.

The industrial engineer may sometimes be connected with the operating department. Where this is the case, all the industrial agent does is to prepare and execute the agreement. This, however, is no easy task as many problems arise in connection with the execution of siding agreements. The constructian of industrial sidings forms an important part of the work of the industrial agent, because industries of any significance from ths standpoint of traffic are constantly being encouraged to have them installed. A siding in a plant assures the railroad operating it at least a partial monopoly of the traffic originating at that point. When we speak of locating a new industry on a line, it is almost the equivalent to saying that such an industry is connected with the main track of the railroad by a siding. It is preferable to have a siding installed where the revenue from its operation justifies such a step, that is, where the industry ships or receives several carloads of freight per day. In proof of the above statement, it is only necessary to turn to the shippers' guide, commodity index or similar lists to be forcibly impressed by the large number of industries which have had sidings installed Some guides list only the names of those using this type. of trackage. Once a site has been selected for the construction of a plant, the question of a siding invariably arises. In considering sites for industrial establishments even before prospective occupants are in view, the railroad contemplates the feasibility of constructing a siding.

The Interstate Commerce Act specifies in Section one, Clause nine that railroads must install and operate switches or connections wherever practicable upon application by shippers.

The work of an industrial engineer consists of preparing plans for side tracks, estimating the cost of construction and preparing and executing side track agreements. When an industry decides to install a side track, the industrial engineer first ascertains the amont of traffic to be expected. This is computed by requiring the industry to fill out an application in which data is given concerning the nature of its business, the number of carloads of inbound traffic and their points of origin, the number of carloads of out-bound traffic and their destinations, from this is estimated the revenue receivable from the particular concern. Where the traffic warrenst such a step, the railroad bears the cost of constructing the siding from the switching point to the point of cf clearance. Where the traffic is not sufficient to warrent this, an industry desiring such service must assume the cost of installing it. In the former case, the railroads usually adopt a reimbursement plan. The industry pays the cost of construction and is reimbursed at the rate of two or three dollars per car on all carload traffic. The reimbursement ceases after four or five years. The industry itself will have to bear the cost of construction from the point of clearance to the end of the side track.[1]



1. Terms used on side track construction:

"Point of switch"—The point of connection between the main track and the side track.

There are numerous kinds of tracks: the main line, the branches, passing tracks, switching leads, yard tracks, house tracks, stock tracks and team tracks, all of which are used in the general conduct of the railroad's business. Most of the latter are grouped under the heading of station tracks. All tracks may be classified under three heads: operating tracks, station tracks and industrial tracks.[2]

Operating tracks, as the term implies, are the trcks which are essential for the operation of the railroad. The station tracks are owned by the railroad, constructed as a part of the station facilities but do not include industrial tracks.

Distinction must be made between team tracks and industrial tracks. Team tracks are public delivery tracks from which freight is forwarded by consignors or taken by consignees. The handling of carload freight, which is loaded or unloaded directly from or into cars and wagons, requires "team track." "These are usually constructed in pairs, with a paved driveway not less than 40 feet wide between each pair. Large quantities of carload freight are handled by this method. It is usual to subdivide the team tracks according to the various classes of traffic handled; for example, there may be 'coal team track', 'lumber team track', 'merchandise team track' and 'perishable team track'[3]

> "All carload shipments for parties not served by private tracks should be handled on team tracks, but on most railroads it is uot unusual to place such cars on some other track if the customer may be thereby accommodated. For instance, an industry with a plant close to the stock yards may wish a delivery on the stock track and the car is placed there, or perhaps a car is even set on a switching lead for delivery when so requested.

1. (continued)

   "Clearance point"—The point at which the center line of the side track first becomes 13 feet distant from the center line of the main track. Point at which a car standing on the side track will clear a car passing on the main track.

   The railroad owns only the portion of sike track from point of switch to clearance point and maintains such portion. The portion of side track beyond the clearance point is owned and maintained by the industry.

2. M. C. Burton, "Industry's Right to Use Railroad Station Tracks, pp. 32-33, Proceedings of 20th. Semi-Annual Meeting (Dec. 6-7, 1928) of American Railway Development Assoc.

3. p. 193, D. R. Dewsnup, Railway Organization and Working.

Instead of reserving team tracks for the use of the general public it is the custom, especially at the smaller stations, to encourage industries to locate adjacent thereto. This sometimes works to the advantage of the railroad as well as the industry as by the elimination of traming or trucking much time may be saved in loading or unloading a car, thereby releasing the equipment more promptly; space ordinarily occupied by trucks working at the car is conserved and the element of hazard is considerably reduced."

Industrial track is the name usually applied to tracks leading into industrial, manufacturing or commercial plants. They are tracks from which freight is forwarded by consignors or taken by consignees whose industries are located on them.

"It is becoming more and more the custom for industries(2) to be located along the line of railway or to be connected directly with such line by means of industrial tracks, thus eliminating the handling of freight by means of wagons—a more expensive process. It often cost as much to transport a ton of freight one mile by wagon as it does to carry it 100 miles by railway. Industrial tracks also make it possible away to do with the additional double handling, of freight, with its increased danger of breakage etc."

"An industry desiring special facilities, or exclusive trackage, always has the privilege of constructing same at its own expense, although the railroads, generally speaking, will contribute the engineering work, and frequently the right of way; will freely give advice regarding operation and when desired, will even construct the track at cost.

Such tracks, called 'industrial tracks', are sometimes kept entirely in the control of the industry, but are usually operated by a regular railway under a contract which charges the industry only with maintenance and liability, making no charge for the additional service rendered in sending a locomotive into industry's plant and switching cars to or from tracks constructed to meet the convenience of an industry rather than a railroad."

Closely allied to such industrial tracks is the industrial railroad which is defined by Interstate Commerce Commission in 23, I. C. C. 277 as "a short line constructed primarily to serve the particular plant or industry in the general interest of which it is owned and operated. It consists of the tracks connecting with one another the various factories, warehouses and other buildings of the industry, and ordinarily has a connection with one or more adjacent trunk lines by means of a track leading from the plant to their right-of-way. It serves the industry by receiving its inbound shipments of raw materials from the trunk lines at agreed interchange points, distributing them among the various buildings according to the requirements of the manufacturing operations, and by taking its finished products from the plant to the trunk lines; it is also often in a position to effect all the necessary movements of materials and partially finished products from building to building within the plant."

CHAPTER IV.

GEOLOGIST.

The primary aim of the railroad industrial department is to aid in the development of the natural resources of the territory traversed by its lines[1]. The greater the amount and variety of natural resources within the territory of a railroad, the greater will be its prosperity. The very existence of a railroad may depend upon the natural resource in the territory served by it. In fact, most railroads are built for one or more kinds of natural resources. For instance, railroads are built to exploit timberland, coal fields, iron mines, stone quarries, copper mines and other such resources. When these have been exhausted or become of minor importance, the railroads would be forced to abandon their lines, had they not been able to develop other opportunities within their territories. In order to avoid this contingency, the railroads employ geologists, agricultural and industrial specialists to inspect the ground on both sides of the railroad for the purpose of finding new resources and industries for the further develpment of the territory. Practically all railroads tap deposits of some important raw material. Mineral resources lying waste do not constitute wealth. They neither contribute directly to the revenue of the railroad nor enhance the prosperity of the territory. Consequently, the railroads always endeavor to put them to use. Since the railroads derive greater revenues from handling freight in the finished product stage than as raw material, all of them try to have these converted into finished products within their own territory. In order to accomplish this, it is necessary for the railroad to ascertain first the raw materials available on its lines and then to find out how to develop them. For this reason, such railroads as the Southern Pacific, Northern Pacific, Union Pacific, Missouri Pacific, Baltimore and Ohio, Gulf-Mobile and Northern, Central of Georgia, Atlanta-Birmingham and Coast, Sea-

1. Questionnaire: "Do you make survey of mineral and natural resources along your line?" 50-14-2

board Air Line, Canadian Pacific, Canadian National and others are now employing geologists to make such surveys. Practically every railroad calls in such assistance at times even though it may not employ a geologist regularly. Many railroads employ such experts on a part-time basis. For instance, some geologists employed by railroads teach in universities or work as engineers in mining organizations. Some railroads see no apparent necessity for employing geologists. Many railroads run through agricultural rather than mineral territories. For such railroads, there is very little immediate need for a geologist. Other railroads may have lost faith in the ability of geologists because they have, at some time, made the mistake of employing some who are incompetent. There are, as one has stated, "too many 'half-shot' geologists who spoil the reputation of the profession and lead people to believe that geologists are not efficient workers." Experience has shown however that once a good geologist enters the employ of a railroad, his services will immediately become indispensable. All that is needed is a trial to convince the railroads of his usefulness.

The geologist working for a railroad not only has a theoretical and practical knowledge of his science but also realizes its industrial significance, because his work is supplementary to that of the industrial agent. He familiarizes himself with the mineral content of his territory and is able to estimate both quantity and quality of the deposits. Here is the experience of the geologist as summed up by one of them: "They are usually men who have devoted their attention to the economic side of geology, either as mineral technologists, geological engineers, ceramists, industrial geologists or mining engineers who have seen in railroad development work opportunities for service.[2]

The work of the geologist consists of research and prospecting. There are many references on geology in the United States. Various institutions of the federal, state

2. pp. 36-42, Proceedings of the 22nd. Annual Meeting of American Railway Development Association, June 18-20, 1930, "The Geologist in Railway Development," by H. M. Payne.

and local governments make investigations of the geological deposits of the various territories. Some important engineering universities also engage in this work and studies are made by mineral geological and other scientific organizations. Such information may also be gathered by commercial and industrial organizations. The sources of information are so numerous that it is impossible to mention them here.[3] The geologist must first make an extensive study of all available data contained in the reports of the institutions mentioned above and read through the technical journals and the reports of technical societies for items bearing on the district to be explored. With this knowledge as a foundation, he travels along the line of the railroad and makes a thorough study of the mineral deposits. He carries with him a topographical map and walks through the territory of the railroad, usually, covering fifteen miles on each side of the tracks. He follows river beds and other places where erosion has brought submerged minerals to the surface. Farmers and other land owners sometimes have in their land certain stones and rocks which they believe to be valuless, but the geologist may discover that they are neglected sources of potential wealth. He helps the owners to find prospects. After a thorough study of the territory, the geologist puts down on the topographical map all of its valuable mineral deposits. When the whole line has been covered, he knows exactly where the different known minerals are located. He then proceeds to prepare a list accompanied by a map.

Regarding the value of mineral maps, one geologist said: [4]

> "A geologic map with the location of the developed and undeveloped commercial mineral deposits provides access to information, just as a filing system makes available correspondence.

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3. Nickles, John Milton, Geologic Literature on North America, 1785-1918, United States Department of the Interior, United States Geological Survey Bulletins; 746 (Bibliography), 747 (Index), and 823 (Bibliography of North American Geology 1919-1928)

4. Poole Maynard, "Value of Mapping Undeveloped Mineral Deposits" pp. 25-28, Proceedings of 20th. Semi-Annual Meeting, Dec 6-7 1928, of American Railway Development Association.

Such a map would also show the location of the mineral resources with relation to distance from the railroad; with relation to hydro-electric power and the position of the deposits with reference to fuel, including coal, cokes' oil and gas, with available water supply and their position with relation to markets.

Such a map showing the location and association of the raw materials make possible an interpretation of their adaptability not only for use in new products, but to meet the raw material requirements of established industries."

The map is only an index to solicit inquiries from prospects. It must be supported by detailed and complete information, interpreted in the terms of the industry. The exact nature of the deposits must be ascertained so that their proper use may be determined.

This knowledge is put into readable form and transmitted to the public through the medium of advertising, news articles, pamphlets, leaflets, letters, posters and magazines. The development branch of one railroad, for instance, has prepared, for general distribution, an up-to-date synopsis of pertinent and practical data regarding natural resources available on its lines. (5)

When the development department finds prospects for certain minerals, the geologist supplies them with definite information as to where these deposits can be found—pointing out the quality, quantity, location and owners in each case. His information is complete and exhaustive. The functions of the railroad geologist as related by one of them consits of the following:(6)

"The geologist, trained in movements of the earth's crust, identifies the products of erosion and of sedimentary deposition, of igneous upthrust and of faulty bedding, and translates this knowledge into dollars and cents for his employer.

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5. *A list of synopses*: Abrasives; arsenic; asbestos; barite; bituminous sands; building materials; chromite; clay; coal; cobalt; copper; diatomite; feldspar; flax; fluorspar; forests; gold; granite; graphite; gypsum; iron; lead and zinc; limestone lithium minerals; magnesite; magnese; mica; mineral water; mining situation; molybdenum; naural gas; nickel; ochre; peat: petroleum; phosphate; platinum; potash; pyrite; salt; sand; gravel; silica; silver; slate; sulphates of sodium and magnesium; talc and steatite; tobacco; and water power.

6. H. M. Payne, "The Geologist in Railway Development; pp. 36-42, 1930 Proceeding of American Railway Development Association.

"The geologist, through his knowledge of mineral products, their classifications and uses, obviates disputes in rate making and in preventing misrepresentations.

"The geologist, bringing to the railroad his knowledge of raw materials and their uses, induces the establishment of mines and quarries and manufacturing enterprises, whose products as well as many by-products tend to increase freight revenues.

"The geologist, to the small shipper, financially incapable of expert consultation, stands as advisor in the better marketing of his wares, in the securing of new sources of raw material supply, and also in discouraging unwise and uneconomic investment where capital would only be wasted. Such relations bring the shipper into close and personal contact with the railroad to their mutual advantage.

"The geologist, in the location of bridges and tunnels, through his study of rocks and dip of strata, earns many times his pay in the resulting efficient location and construction.

"The geologist, through co-operation with mining schools and contact with his professional confreres, brings to the railroad the benefit of a wide degree of professional service and enables his employers to profit by the latest developments, in an age of rapid advancement.

"Citizens located along the line of a railroad often have visions of large profits from development of raw materials on lands in which they are interested, but which in reality have no value. Conversely, it not infrequently has been the writer's experience, particularly along the line of my railroad, where until recent years the land has been covered with dense timber, that valuable deposits of bentonite, fuller's earth, refractory clays, kaolin, glass sand or other valuable nonmetallics are to be found in areas of easy access, but of whose existence no one was aware.

"Where such deposits have real value he can be of service to his road by making contact between the road and the potential consumers. Where they have no value, he can by courteous test and demonstration prove his point without incurring the ill will of the owner.

"A railroad should have in its files properly classified data on all of its mineral resources, and of the geological formations through which the line operates.

"An efficient program for railroad development should be based on accumulated facts ascertained by the geologist, made available in such form as will invite the attention of investors and seekers for raw materials, and widely spread through current advertising, and through distribution to the railroad's stockholders and directors, thus not only making most widely known where such materials may be obtained, but also showing the valuable assets back of the railroad investment.

"Employees may thus know more about their road and be in a position to discuss its advantages. The army of employees is the greatest selling force in the employ of any railroad. Where a geolog-

ist is only employed for occassional consultation, the road lacks the immediate availability of competent advice and frequently loses an industry.

"A competent geologist, experienced in the economic production of minerals and familiar with their marketing, who combines with his work as a 'rock hound', a lively sense of industrial economics and who keeps abreast of the times, who notes the trend toward decentralization and diversification, and who senses the value of a local pay-roll in the small towns along his road, is as essential to the development department of a railroad, as is the carburetor to the automobile.

"Moreover, through co-operation with the engineering and traffic departments, the geologist may be of great interdepartmental value, and may serve in matters of public relations between the executive heads and the public generally."

Co-operation between the geologist and the industrial development department is important, as their work is interrelated.

Some railroads have laboratories to test all samples of minerals sent in by their employees or others along the lines. The geologist does his best to encourage such explorations and to induce wide spread co-operation. The geologist makes use of every opportunity to tell the people within and without the railroad of the importance of developing mineral resources.

Whenever there are fairs or expositions in which the industrial department is invited to participate, a chance is afforded the geologist to show some of the important minerals of the territory along the lines of his railroad. He can display samples of minerals and point out the locations in which they are found with the help of a large mineral map. Some railroads have constant exhibits of minerals in the office of the industrial agent, in railroad stations or in other places where prospects may see them.

CHAPTER V

TRAFFIC RESEARCHER

The industrial department serves as a clearing house for traffic information. Some railroads have established traffic research bureaus as a section of this department which makes detailed studies of traffic conditions.[1] Copies of these are furnished to divisional representatives who in turn relay facts relating to their local fields to the main office. This information is given the traffic representatives so that they may know the condition of the whole line as well as that of the particular region with which each of them has to deal This facilitates cooperation among them, thus leading to the attainment of better results. With such a system, it is made easier for them to picture conditions as a whole. For instance, they know the exact proportion of the products of a certain concern shipped on their own line and the proportion going to its competitors. They are therefore able to talk more intelligently with the industries while soliciting traffic. They know where the traffic is coming from; where it goes and who controls it. After such information has been sent out, the bureau follows it up until the new traffic is either obtained for the railroad or has gone to another line. Traffic problems too difficult for the solicitors are taken up with the higher officials of the traffic department. Such specific items as rates, service complaints' demurrage and damage are assigned to specialists in these lines, as they are in a better position to handle such matters. Questions involing specific commodities are referred to experts in various fields, viz: Lumber and forest products are referred to forest product agents, livestock to livestock agents, milk to milk agents, and imports and exports to foreign freight agent. More important matter such as those pertaining to claims, purchases, industries and large traffic movements adversely routed are brought to the attention of the industrial agent or other officials to whom the bureau reports.

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1. Questionnaire: Answer to the question "Do you make traffic researches in order to facilitate solicitation of traffic?" 33-30-3.

The bureau is usually able to estimate the approximate production of each concern by studying the volume of raw material and the activities of the factory. When the railroad shares an increased or a decreased proportion of the traffic of any particular firm, reasons are given for this change and possible remedies suggested. Charts, diagrams and interesting reading matter are inserted in the reports in order to make them easily understood. Maps are used to show the locations of factories, sources of material and markets.

The bureau collects information regarding solicitation activities by receiving carbon copies of the correspondence taking place between solicitors and freight agents regarding prospective traffic and the results of each solicitation. This information is incorporated into a list of outstanding traffic items and a traffic summary. The traffic representatives also report the tonnage and cars received or forwarded. This data is incorporated in the commodity tonnage statement. A record is kept of the traffic handled for each principal industry and traffic statistics of new industries are also kept. The bureau receives information regarding proposals for new buildings and road construction. Such information is redistributed to facilitate the solicitation of movement of construction materials. The following information is also found helpful, viz: A report of new industrial and commercial institutions located on the lines of the railroad, a report of import and export movements and a list of outstanding item of prospective traffic. Every item in the last mentioned list is followed up to note the results of solicitation. Any of these solicitations which fail to bring results are investigated and remedial methods devised. For ready reference, a special file is kept in the office covering every important industry, commodity and city and the activity of each traffic division.

Statistics are useful for traffic information. One set of statistics shows, by month, the inbound and outbound traffic of each division, another, carloads of such products as coal, coke, forest products, grain and its products, iron and steel products, live stock, ore, and miscellaneous. Other statistical abstracts deal with blast furnace activities, total carloads of revenue freight loaded on line, total carloads

of revenue freight received from or delivered to connecting lines, import and export tonnages' total freight carried and coke, coal and ore movements.

In addition to such statistics, special studies are made of specific commodities such as rubber and sugar. Special investigations can be made of several important terminal cities, intercoastal traffic, official class rates, imports and exports.

Most of the information gathered by this bureau is derived from correspondence with the traffic representatives, but mention should be made of another important source namely, the monthly reports of the division traffic agents to the traffic manager, and those of the traffic manager to the vice-president in charge of traffic. These reports sum up all the traffic information received from the various territories and consist of the following items: Business condition and outlook; volume of traffic—showing changes and giving reasons therefor; activities of the important industries; condition of service; car supply; industrial developments; rate situation; interchange of commodities; imports and exports and miscellaneous items including: fires, accidents, road or building construction, new industries, expansions of existing industries, shut downs, resumption of business and activities of competing lines.

The traffic researcher also consults periodicals covering special fields: such as Indian Rubber World,. Facts About Sugar, Iron Age, Steel, Textile, Glass, Fertilizer, Chemical, Nation's Business and the Business Weekly. He also receives reports from the Agricultural and Commerce departments of the government and from the several states.

CHAPTER VI

THE RELATION OF INDUSTRIAL DEPARTMENT WITH OTHER DEPARTMENTS OF THE RAILROAD AND WITH OUTSIDE ORGANIZATIONS.

Interdepartmental Relations; Illustrative Cases; Solicitors; Other Members of the Traffic Department; Operating Department; Real Estate Department; Other Departments; *Co-operation with Outside Organizations;* Civic Organizations; Industrial Land and Development Companies; City Authorities; State Chambers of Commerce; Chamber of Commerce of United States; Development Departments of Public Utilities Companies; State Manufacturers' Associations; Geological Surveys and other Departments of the State Government; Universities and Colleges; Federal Departments; Trade Associations; Industial Real Estate Brokers; Consulting Engineers; Industrial Financiers; Banks; Press; Merchants and Local Business Men; Other Railroads and Railroad Associations; Method of Cooperation; Illustration.

As the industrial department is an integtal part of the railroad which it serves, one of its important activities is to secure adequate co-operation from within the railroad. This is accomplished through staff meetings attended by the heads of all departments of the company, where, matters of mutual importance are discussed and interdepartmental policies determined. To these meetings, the industrial agent brings such matters as may require assistance from the real estate, traffic, operating or other departments.

Aside from general staff conferences, consultations are held between representatives of the industrial department and other departments regarding matters affecting only themselves. Delays in securing information or assistance are sometimes inevitable. When these occur, the industrial agent compensates for them by expediting his own work. Telegrams, long distance telephone calls and personal interviews are resorted to in such cases.

The industrial department usually being a division of the traffic department, submits monthly and annual repors. covering its activities to the official in charge of traffitc These are compiled by reviewing the records of the industrial department and the division freight agent. Detailed descriptions are given of newly initiated projects; estimates furnished of the volume of traffic; revenues expected therefrom and a summary, of side track applications and new industries secured or approached are given

according to their classification. Copies of these statements are sent to all important members of the traffic department viz: the vice-president and assistant to vice-president in charge of traffic, regional vice-president, traffic manager, other industrial agents, coal traffic manager and other specific traffic managers, general passenger agents, general freight agents and warehouse superintendent.

In addition to the reports just mentioned, the industrial agent submits memorandums regarding all important developments in his department. Other departments of the system forward all material collected by them which would be of value to the industrial agent. For example, local freight agents forward to the division freight agent any information, whether based upon facts or hearsay, relative to industrial projects. This is transmitted to the industrial agent.

Illustrative cases.—Perhaps no better illustration can be given of the co-operation between the industrial and traffic departments than is shown by the work of the traffic researcher.[1] Similar illustrations can be drawn from the discussions of prevention of freight claims at their sources, determination of policy in regard to the improvement of service and facilities and extension or abandonment of lines and industrisl location.[2]

Speeial Policy.—The industrial agent has no power to make exceptions to the rules governing the operation of his railroad. He cannot grant special concessions to prospects. There are, however, many occasions when compromises with the industries or with the public are necessary. A few illustrations are furnished by the following cases. Consent of the higher authorities must be obtained before the industrial agent can promise construction by the railroad of warehouses or other buildings and equipment; an extension of sidings; changes in the clauses in siding agreements or reductions in rents. Matters of this kind, which are beyond the control of the industrial agent, frequently cause considerable delay and co-operation on the part of other departments is most helpful in expediting such matters.

1. See Chapter V, Traffic Researcher
2. See Chapter II, Industrial Agent

Sometimes, conditions arise which compel the industrial agent to deal with municipal, county or state governments. He is also brought in contact with civic bodies or commercial organizations regarding matters in which the help of the higher officials of the railroad is essential.

Solicitors.—Every railroad system has a force of traffic solicitors, who come in daily contact with the public. Their duties are similar in some respects to those of the industrial agent. What has already been said concerning the co-operation with traffic representatives in general applies also to the solicitors, especially in the following matters: They report to the industrial agent regarding changes in the industries affecting traffic, changes in policy, in production and in volume of business. The industrial agent informs the traffic solicitors regarding new industries located on the lines of the railroad and also of such changes in established industries as have come to his notice. The industrial agent uses the traffic solicitors as local representatives of his department. They report progress of negotiations, establish contact with prospects and themselves act in cases of emergency. They acquaint the industries with the services and facilities offered by their line and instruct shippers in the best method of loading and handling commodities.

Other Members of the Traffic Department.—Other members of the traffic department co-operating with the industrial agent are: (1) The foreign freight agent who represents the indutsrial department in matters handled in foreign countries viz: publicity for the industrial department and the attempt to secure branch factories of foreign companies. (2) The rate agent secures rate quotations for industries requesting same. He also makes an estimate of traffic revenue to be expected from new industries. He assists in trying to secure favorable rates fair to both the railroad and the industry when the latter is marketing a new product. (3) The tracing bureau traces cars for industries to expedite movement or stop freight en route. (4) Coal agents help to locate coal companies, collect and disseminate information regarding changes in coal traffic, assist such

companies when they are moving to a new location, inspect sites suitable for their use and deal with all matters concerning coal. These agents are instructed to study the service constantly and to seek for improved method of handling coal in order to forestall competition. They also frequently inspect the condition of sidings, coal trestles and other facilities. (5) Milk agents are responsible for securing adequate facilities for milk shipments. They also assist in the organization of co-operative shipping associations and encourage the milk industry in order that the shipment of milk may be increased.

So far, only the traffic department has been dealt with. Other departments from which co-operation may be expected are those in charge of operations, real estate, accounting, valuation, legal matters and publicity.

The **operating department** decides upon the use of the land owned by the railroad. Therefore, it must be consulted before land can be sold or leased. This department provides right-of-way maps and blue prints for various uses; controls the contruction and maintenance of sidings; controls warehouses, water terminals and other facilities. Under the operating department, there are (1) the transportation department which attends to all complaints pertaining to transportation service, and which endeavors to supply adequate transportation; (2) the engineering department which makes surveys and estimates of sidings and constructs same; supplies maps, blue prints and engineering data on various localities and properties upon request of industries; and which is able to show the track layout in the various properties along the railroad; (3) the water department or bureau which keeps data of analysis of the water in different localities and is able to supply industries with such information; and makes surveys and special investigations regarding water supply and (4) the track inspector who inspects the sidings in order to keep them in proper working condition.

Real Estate Department. – The closest possible co-operation exists between the real estate and industrial departments because of the similarity and interdependence of many of their functions. The real estate department sup-

plies the industrial agent with a list of all railroad properties for sale or lease. The industrial agent furnishes the real estate department with a list of industrial sites owned by parties outside of the company. Information is exchanged between the two departments regarding inquiries for industrial properties. The data on these properties are complete and supplemented by maps, blue prints and photographs. There is no doubt that the industrial agent is anxious to help in the disposition of the railroad properties But the real estate department often has little interest in helping the industrial agent find purchasers or tenants for other than company owned properties.

The real estate department informs the industrial agent regarding such vacant sites or buildings along the line as come to its attention either during inspection trips by members of the department or from information received through local real estate agents. The real estate agents of the railroad in large cities frequently supply the industrial agent with data regarding sites in their localities.

The other departments are the accounting department which keeps siding reimbursement accounts during the refunding period and the insurance department which gives advice regarding the liability of the railroad in connection with the operation of sidings. This department also advises concerning bonds or insurance on sidings and insurance covering the handling of oil or other inflamable commodities. This department also advises the industries along the railroad lines regarding their own insurance problems. The valuation department supplies the industrial agent with maps, blue prints of the railroad properties and right-of-way maps. The legal department drafts siding agreements and interprets them. When special problems arise, it also serves in an advisory capacity. Occasionally, the industrial agent may be called upon by the industries themselves for advice concerning their own legal problems. Naturally, under these conditions, the industrial agent seeks the co-operation of the legal department of the company. The publicity department is very important to the industrial agent because information regarding his work requires wide dissemination. That department furnishes press notice

covering the activities of the industrial department. Printing and advertising for the industrial department are also handled by it. This department not only furnishes press releases regarding the work of the industrial agent but also prepares material for the purpose of acquainting employees of other departments in the railroad itself with the work of the industrial agent. Claim agent co-operates with the industrial agent by giving instructions in the proper methods of packing, loading, unloading, marking, billing, grading, and inspection. The warehouse superintendent co-operates with industries seeking either to lease or construct warehouses. He sees to it that all industries in important cities are provided with adequate warehousing facilities, and gives advice to industries regarding the best methods of building and managing their own warehouses.

CO-OPERATION WITH OUTSIDERS

Civic Organizations—The work of the industrial department is confined in most cases to a few of the principal cities along the railroad. In these centers, there are always important commercial organizations such as a chamber of commerce, board of trade, association of commerce, commercial club, merchants' and manufacturers' association, advancement association, civic and commercial association, businessmen's association or others of like character. In such organizations, one often finds an industrial development department with which the industrial agent can co-operate. In most cases, the local industrial bureau is a part of the chamber of commerce. The importance of its work sometimes necessitates the formation of a seperate organization such as the Industrial Corporation of Baltimore City, the Louisville Industrial Foundation, the Industrial Development Company of Keene, N. H.; Ohio Valley Industrial Corporation, Wheeling, W. Va. and the Industrial Finance Service, Portland, Ore. These bureaus really go out to seek industries. They make every effort to bring them to their cities. They make thorough studies of their cities and present their most attractive points to the industries.

The interest of the industrial development department of the railroad and that of the cities are often identical, with the exception that the former is interested in the large

territory traversed by its lines while the latter confines its attention to the city and its environs. Both are interested in getting industries. They undertake similar activities—study resources; make industrial surveys and market studies; get publicity; secure names of prospects and prepare lists of industrial sites and buildings. The manner in which they take care of the prospects and rander them service is the same. There is no doubt but that each can help the other. The industrial agent of the railroad has the advantage of wide and general experience with industries in a large territory, while the city industrial agent has an intensive knowledge of a single locality.

Every chamber of commerce seeks to have the railroad affiliated with its organization, because of the important part a railroad plays in the life of a community.

There are many advantages to be gained by the industrial agent through membership in such organizations. The membership of these associations is usually drawn from among the leading business and professional men of their communities, upon whose patronage the prosperity of the railroad depends. At the gatherings of these associations, he frequently learns of pending highway construction, plans for developing subdivisions, erection of business buildings and new industrial developments. Through his membership in local business organizations, the industrial agent is able to secure assistance in presenting the advantages of their communities to his clients. In return, he co-operates with them in helping to retain industries planning to leave a city or helping other industries meet temporary difficulties. Needed service may often be rendered established concerns through the assistance of local business organizations. Their activities include the handling of housing, educational and other problems affecting the life of the city. The need of this official for local connections makes it imperative for him to join civic and business organizations in the communities along his lines. Where there is no such groups to serve as a nucleus for the creation of civic spirit, the task of the industrial agent is much more difficult. It is to his advantage to ally himself with every community group working for local bet-

terment. Where these are lacking, the industrial agent often initiates movements looking to their formation and development. His participation in community affairs is made difficult because he is apt to be accused by interests in other cities where, through lack of time, he cannot take part in similar activities, of discriminating against them. Where this is the case, the industrial agent, instead of refraining from such activities in order to avoid suspicion, tries to be equally influential in every city where his help is wanted. Assistance is given to organizations deserving it. Although often alike in purpose and in the scope of their activities, civic organizations are divided into variously named groups such as have been ennumerated above. Where the industrial agent must make a choice, he joins those organizations which are active and enthusiastic. He is interested in the affairs of all the important cities along his line. In a large organization such as a railroad, the company may be represented in practically every civic organization through the membership of its employes resident in the different communities. Hence, it is not necessary for the industrial agent himself to be a member of every organization so long as he finds someone in the service of the railroad who is able, when the need arises, to present the company's point of view. Even though he is not a member, the industrial agent is usually a welcome visitor at the meetings of such local groups. He endeavors therefore to make the best possible use of these potential contacts.

In obtaining new industries for a community, the industrial agent often needs the co-operation of local civic organizations because these are usually possesed of necessary information and have a large fund of energy and enthusiasm. Such organizations are also in a position to demand needed improvements. The civic organization forms a nucleus around which local enthusiasm may be developed. Such organizations are constantly seeking additional industries which would increase local prosperity. Organizations of this character often send representatives to interview prospects, write letters, setting forth local advantages and keep lists of prospects of their own. Sometimes, these are more complete than those of the in-

dustrial agent, or at least, contain different names. When the lists are compared, new prospects can be developed for the particular city. The importance of co-operation in such matters is apparent. The local agent knows the type of industries the city is fitted for. He knows its wants and is able to help maintain a policy of industrial balance and diversification in his community.

The best illustrations of the co-operation between the industrial agent and civic organizations are furnished by his activities which are described in detail in another chapter.[1]

Other groups with whom the industrial agent may co-operate to advantage are: industrial land and development companies, state chambers of commerce, the Chamber of Commerce of the United States, city authorities, state manufacturers' associations, geological survey divisions and other departments of the state government, state universities or colleges, the industrial departments of public utility companies, United States Department of Commerce and other department and institutions of the Federal government, the industrial real estate operators, consulting engineering firms, banks, the press, merchants,[2] other railroads, railroad associations and research bureaus. Most of the organizations mentioned above are interested in the industrial development of their various cities, of certain regions or of the nation as a whole. All of them are helpful to the industrial agent either in getting information or in actual physical asssistance in his work.

Industrial Land and Development Companies.—Industrial land and development companies are interested in developing real estate for industrial purposes. The railroad industrial agent can help them to determine the layout of the plan and install sidings in accordance with it. Many railroads have actually undertaken propositions of this type on their own initiative. There is little doubt that they will be interested in this matter.[2c]

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1. See Chapter II, Industrial Agent
2. Questionnaire: "Do you cooperate with the following institutions?"
   a. Industrial bureau in cities, 64-0-2

City Authorities.—The industrial agent gathers a great deal of first hand information from local authorities. The most useful items are those dealing with the issuance of building permits, recording of deeds, fire reports, developing of ports, highways or other facilities, municipal markets and zoning.[2d]

State Chambers of Commerce.—The state chambers of commerce mobilize the best citizens of the state for the study and solution of state wide problems. "It helps local chambers. It employs men to advise and confer with them. It acts as a clearing house and agency of communication between local chambers. It aids the weak chambers, organizes chambers where none exist and acts as friendly counselor and co-operator."[3]

It covers a wider area than that of the city chamber of commerce. Its interest is more nearly analogous to that of the railroad industrial department. Its information is more varied and the scope of its interest is wider. Its list of real estate for industrial purposes and of prospects together with studies made by it are all more valuable to the railroad, because they cover a larger area. Having the same type of activities, the state chamber of commerce is more willing to co-operate with the railroad. It frequently inquires of the industrial agent regarding available sites in his territory.

The Chamber of Commerce of the United States.—The scope of the activities of the Chamber of Commerce of the United States is even more comprehensive than that of

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2. *(continued)*

   b. Public utilities, 64-0-2
   c. Land and improvement companies, 57-6-3
   d. City authorities, 64-0-2
   e. State and national chambers of commorce, 63-2 1
   f. State manufacturing associations, 50-8-8
   g. State government and its divisions: geological, industrial, public construction, etc. 53-6-7
   h. Universitives and colleges, 51-9-6
   i. Federal Departments (United States Department of Commerce etc.) 31-10-25
   j. Other railroads. 60-4-2

3. p. 125, 1920 Annual Proceedings of National Association of Commercial Organization Secretaries.

either local or state organizations. Therefore, the industrial agent can often secure information both more detailed and more varied from the national than from either city or state organizations. It keeps track of the latest local industrial developments on a nation wide scale. The industrial agent is particularly interested in the work of the following departments: domestic distribution, manufactures, civic development, transportation and communication, fabricated production, and natural resources. The work of the various departments is cited in the footnote below.[1]

It is a national organization and represents the ideas of the commercial and industrial organizations of the nation. It establishes its policies bearing upon national and in-

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1. Quoted in part from leaflet of Department of Manufacture: Chamber of commerce of the United States.

"The work of the department is to afford the member an industrial information service of a more intimate character than ordinarily available, where their common language can be spoken and understood. The department aims particularly to assist a chamber of commerce with any of its problems pertaining to industrial expension. The local chamber, for example; may find it difficult to obtain reliable information on the conditions surrounding a manufacturing iudustry. Possibly, the department can be of service, not through maintaining a store of statistics and industrial information which may soon become obsolete, but through the exercise of its function as a clearing house of up-to-date information gathered from the National Chamber's innumerable points of contact. Another special service is in the field of employer-employee relations. Its service to trade association consist of the movements in the field of uniform cost accounting and movement for the elimination of waste through standardization and the simplification of varieties."

Quoted from pp. 129-153, 1921 Proceedings of National Association of Commercial Organization Secretaries:

"The civic development department serves the secretaries of the local chamber of commerce by giving them information on the subjects within the wide field of their civic activities. Its activities are carried on in five bureaus: organization service, education service, housing and city planning, immigration and citizenship, and national civics. The transportation and communication department deals with all meanses of transportation and particular interest is laid on railroad. Fabricated production department has to do with common problems of the manufacturer. Among these problems are included cost accounting, simplification of variety in commodity produced, standardication and production statistics."

ternational affairs through resolutions passed at its annual meetings and referenda submitted to the member organizations. The industrial agent induces the local chambers of commerce to make the fullest possible use of the service offered by the national body. When an inexperienced chamber of commerce needs help, he refers it to the national chamber. A little help from the national organization saves such local groups from many mistakes.

Development Departments of Public Utility Companies.—The transmission of electric power over long distances by the use of high tension wire has made possible the location of many industries in smaller towns scattered over the country. Such distribution is beneficial to the manufacturers concerned as well as to the nation as a whole. The public utility companies are naturally promoting this movement with great enthusiasm. Their interest in the communities is more permanent than that of many other industrial development organizations. The railroad industrial agent frequently co-operates with the industrial agents of such public utilities.[2b] Some public utility companies are interested in but a single community. However, those that can afford to do so, employ industrial agents and are probably interested in the development of a much larger territory. For this reason, the industrial agent of such a concern has the same sphere of activity as that of the railroad industrial agent. The former, also aims to advance the communities along industrial lines.

Chambers of commerce in the smaller cities usually turns to this expert for counsel and assistance. A well organized industrial department of a public utility company serving many communities, becomes virtually an industrial service bureau for all of them. It brings to the local civic and commercial organizations a background of broad experience in dealing with various phases of industrial development; it gives them the use of facilities along financial and investigative lines, and makes possible calling in person on prospects who could not ordinarily be so dealt with. It endeavors to bring in new industries as well as to help those already established. Its interest is one with that of the railroad industrial agent in trying to increase the prosperity of the communities by encouraging

balanced industries and urging the local industries to manufacture finished products instead of, as in many instances, single parts and semifinished commodities.

The State Manufacturers' Association.—The industrial agent finds it very helpful to co-operate with the state manufacturers' associations [2f] which are able to do many things for industry beyond the power of their individual members. The purposes of such organizations as set forth in the constitution of one of them are: "to improve the manufacturing condition of the industries in the public interest, to advocate fair and equitable legislation affecting the interests of its members and their employees, to inculcate just and equitable principles among its members, and between its members and their employees, to acquire and disseminate useful information for its members, and generally to promote the welfare of its members and their employees and the prosperity of the state and its industries."[5] It serves its members through the following advisory committees: legislative, transportation, taxation, legal, accounting, technical information, industrial relations, Americanization, insurance, finance, banking and credit, industrial investigation, Washington service and publications. "It differs from other organizations in that[6] no commercial organization can speak with the voice of industry or serve manufacturers directly; and no national trade organization, nor any national organization, can serve the manufacturer of the state locally in reference to the big problems common to all. The association embraces within its membership every branch of industry in the commonwealth. Its members are in every industrial town and city. Its executive officers and the members of its various committees know condition of the states, know the needs of the industries in the state, are vitally interested in maintaining the industrial supremacy of the state; and certainly the association, including as it does, representative concerns in all lines of industry, is able to speak with the voice of industry as a whole in the state upon the big problems common to all. And that is something no other organization can do."

5. pp. 5-14, Directory of Massachusetts Manufacturers Association, by the Associated Industries of Massachusetts, 1924
6. Ibid.

Geological Survey and Other Departments of the State Government—State geological surveys and national geological surveys are important to the industrial agent because they add to his knowledge of natural resources of the territory.[7]

There are many divisions of the state government from which the industrial agent obtains additional information. The more important ones are those dealing with conservation, geology, industries, labor, public utilities, transportation, private corporations, public health, water, roads and bridges and public buildings.[2g]

Universities and Colleges.—Important information and constructive suggestions regarding production and distribution are often to be obtained from universities and colleges. The engineering departments of many universities and colleges undertake researches for industries. Many other departments of these institutions are also helpful to him particularly the business research department, industrial research department, transportation and commerce department, economics department and merchandising department with which the industrial agent can consult regarding his business problems.[2h]

Federal Departments.—The United States Department of Commerce collects information from all parts of the world, which may be had by the industrial agent for the asking. He makes use of every possible service of this department. He is acquainted with the work of all branches of this organization and has a list of its publications at hand. Other institutions of the government which compile and publish information that may be useful to the industrial agent are the Departments of the Interior, Agriculture and Labor, the Census Bureau, Bureau of Mines, Bureau of Standards and Interstate Commerce Commission.[2i]

Trade Association—The industrial agent is often in a position to suggest the best method of procedure, when a new line of industry is contemplated or when a city desires

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7. See Chapter IV, Geologist

to seek additional factories. In such cases, the trade association in the particular field is consulted, because this group knows the production capacity and the probable market for a given commodity.

Industrial Real Estate Brokers.—In cities along the line of a railroad, there are many real estate brokers who specialize in industrial properties. The have information regarding sites and vacant buildings and understand industrial requirements. Their activities frequently cover a large area and they usually have connections in other cities through which leads are obtained and data on sites exchanged. It is apparent then that the railroad industrial agent is greatly benefited by coming in constant contact with them. Some architects specialize in the construction of industrial buildings and warehouses. The industrial agent finds it advantageous to co-operate with these firms also.

Consulting Engineers.—In various parts of the country, there are consulting engineers specializing in industrial management. The industrial agent frequently gathers valuable information from this type of experts. They work as doctors to cure sick industries; help to solve industrial problems; study efficiency methods; make surveys and analyze processes of production and distribution. They study the market and work as consultants for communities seeking new industries. Some of them render nation-wide service. When the occasion arises, the industrial agent suggests their service to the industries and the communities on his lines.

Industrial Financier.—The industrial financier specializes in financing industrial developments and promoting new ventures. He is an expert in prognositicating the success of untried propositions. Any industry that needs financing can be referred to him.

Banks.—The industrial agent works hand in hand with local banks which are particularly interested in developing home industries. They are familiar with local conditions and established industries. Information obtained from them is, therefore, especially valuable. The banker often plays a leading role in the industrial and social life of his community as well as in its commercial activities.

Press.—Publicity is of great value in furthering the work of the industrial agent. Hence, he strives to maintain a cordial relationship with the local newspapers.

Merchants and Local Business Men.—The industrial agent works with merchants and other local business men. Mention has been made of the contacts maintained with such men in the chambers of commerce.

Other Railroads and Railroad Associations.—The practices adopted by one railroad are governed to some extent by those adopted by all the other railroads. It is rather common among the industrial agents to exchange opinions and experiences regarding their work. If the industrial agent contemplates an advertisement, publishing a magazine or drafting a special agreement, the opinion of other agents who have had experience along similar lines may be useful. (2j) The American Railway Development Association, an organization of development agents, has been formed to serve as a clearing house for ideas and a forum in which the problems of the profession are discussed. There are other railroad associations working along similar lines. The industrial agent often finds them valuable adjuncts to his work, although their fields differ slightly from his own. Some of these are listed in the footnote which follows.[8]

Method of Co-operation.—The chief function of the industrial agent is to serve as a liason officer between the railroad and the public which it serves. Through his efforts, mutual understanding is created and developed and a spirit of co-operative helpfulness fostered, which reacts to the advantage of both the railroad and the public.

The appended account of the establishment of the plant of the Western Electric Company in the City of

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8. American Association of Freight Traffic Officers; American Association of Railroad Superintendents; American Railway Association; American Railway Engineering Association; American Short Line Railroad Association, Association of Railway Executives; Committee of Public Relations of the Eastern Railroads; Western Railways Committee on Public Relations; Various Railway Clubs; National Traffic League.

Baltimore serves as an excellent illustration of the effectiveness of this form of mutual effort.[9]

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9. P. L. Thomson, Director of Public Relations, Western Electric Company, "How a City Won an Industry", Cooperation Nets Baltimore the Western Electric Plant.

COOPERATION CONQUERS ALL

"Baltimore had, in the beginning, little to offer but cooperation. There was no satisfactory site. Cooperation provided one. The site finally selected did not have suitable utility service, streets, or transportation facilities. Cooperation adjusted these difficulties.

It may be seen from this that cooperation is an effective tool when properly used. The story of Western Electric's factory shows how it works in hands that are willing to take it up—and, equally important, how futile it may be if allowed to rust.

Engineers from the company's construction department were assigned to examine available sites for a new factory. The company wanted at least 50 acres of ground, well located as to transportation facilities, both water and rail; proximity to an adequate labor market of high grade personnel; fair taxes; adequate power at reasonable rates and governing authorities with a favorable attitude toward industry.

The company's representatives went first to the principal railroads serving the Atlantic seaboard and for the most part found these roads in a position to assist. Some were better equipped than others, and from one great trunk line in particular the Western Electric people obtained the most valuable co-opeation.

The industrial bureau of this road had complete information on available sites along its own and tributary lines including not only prices of real estate but pertinent data as to wage scales and labor conditons. In fact, in this particular case, the manufacturer's representatives found a better overall picture of the industrial plant situation in the minds of the heads of this road's industrial bureau than in any other contact they established.

The experience of the Western Electric investigators brought to light a great diversity among cities as to their set-up for obtaining new industries. Some were entirley unequipped to bid for new establishments—and a prospect had to depend solely on what real estate people were prepared to show.

Other cities have chambers of commerce which are more or less moribund, and there is no crystallized sentiment to make the town grow through cooperation by its present residents. In other cities, the business interests are organized but their efforts for the community's betterment are hampered by the selfish aims of politcians. Thus elected, city officials are sometimes found to be jealous of the influence of these non-partisan bodies whose activities cannot control. As a result there is no coordination between the official and the voluutary representatives of the community in the direction of attracting new industry.

9 (continued)

(The article then goes on to describe the obstacles encountered by the investigators in other cities. In one city, the chamber of commerce was headed by a real estate man who made a practice of suggesting to new industries only the sites in which he had a personal interest. The real estate in another city was controlled by one man who charged a prohibitive price. In another city, a bitter battle was being waged to wrest the control of municpal affairs from the hands of autocratic "boss". Every prospective industry planning to locate within the limits of this city was forced to take sides in this conflict. One of the smaller cities refused to extend a trolly line four miles to develop a perfectly good site. Another city has a socialist mayor who discourages private investment. Another city opposed to the indroduction of new industry fearing they would raise the local wage level. Another city had a scale of power rates which placed a prohibitive burden upon industries.)

"Any of these conditions might have yielded to cooperation. In fact, Baltimore, using cooperation as its only tool, attacked obstacles far more insurmountable. Baltimore apparently realizes that it in competition with the world and is organized to make its advantages apparent or, if advantages are lacking, to supply them.

The Western Electric representatives went first to the Baltimore Chamber of Commerce. At its head they found an able business man, keenly alive to the competitive nature of the situation and ready to go to bat for the town. His ally was the Mayor who, recognizing that the best interests of business and the people are mutual, proved ready to use his influence to carry through a civic undertaking that would make Baltimore a better place in which to do business for workmen and corporations alike.

In Baltimore an offshoot of the Chamber of Commerce is known as the Industrial Bureau, operating under an advisory board made up of the president of the Chamber of Commerce, the mayor, a prominent railroad executive and a banker.

The director of the Industrial Bureau, is eager to bring to Baltimore new industries. He has listed all available real estate, full information on labor rates, transportation facilities, rates for light and power and gas rates. Through close contact with Baltimore manufacturers, he is conversant with labor and other industrial conditions that affect their operations. The Industrial Bureau also has all the pertinent information on other cities. Its method is to give the facts at its disposal and then endeavor to get a line on the manufacturers' problems that it may advise what property in Baltimore is best available, and, if none is available, to what other city the manufacturer could best go.

Even this effective organization might have failed in this instance but for the cooperation willingly given by varied groups of persons.

A survey disclosed no site of sufficient size for the Western Electric's purpose. A plan was finally worked out to consolidate two pieces of property owned by different interests. But this property was not adequately served by highways or other public improvements.

9 (continued)

A double track railway line passed through it where it would be necessary to construct buildings. Much of the property was under lease for various purposes.

Furthermore, the railroad which owned a part of it had arranged to sell to the Consolidated Gas, Electric Light & Power Company as a site for a power plant. The land on deep water could not be made of sufficient area to handle shiping adequately unless the War Department would permit construction of a bulkhead beyond the approved bulkhead lines, and, in addition, the city could not build the required highway into the property without the War Department's permission to build a bridge or causeway across an arm of Colgate creek.

Here was a rather staggering array of presumably conflicting elements. The Chamber of Commerce and the mayor went to work on them. They found an unselfish willingness to cooperate. Private citizens affected pulled together for the good of the city. Permission was obtained to build highways and bridges. The municipality gave assurance these streets and bridges would be built, utilities extended and other civic improvements carried out. The railroad agreed to reroute its tracks. Everybody cooperated and everybody will benefit.

In his remarks at a dinner, the president of Western Electric, paid tribute to the spirit in which his company's representatives were met by Baltimore's municipal and civic organizations. He said in part, "there were 15 to 20 seperate problems that had to be worked out, and you will appreciate that these various conditions and many others make it extremely difficult to work out a satisfactory arrangement for the purchase and use of this particular tract, and it was only through the unselfish and effective cooperation of a large number of public-spirited city officials and private citizens that the transactions were finally consummated on a satisfactory basis."

Cooperation, it would seem, is worthy of a place in the municipal scheme.

CHAPTER VII

SUMMARY OF RESULTS

The industrial department has been a part of the railroad systems of the country for a sufficient length of time to have passed the experimental stage. The work of this department appears to have been highly successful as evidenced by the increase in the number of railroads establishing industrial departments and by the increase in personnel and number of branches.

The securing of reliable data from the railroads themselves has proved exceedingly difficult, regarding the actual accomplishments of the industrial departments. In some instances, information was furnished with the stipulation that it should be regarded as strictly confidential. Hence, it is impossible to publish such data.

Answering the question, "If it is convenient to you, may I know the number of new industries established primarily as a result of the efforts of this department?" figures were furnished as follows: Some report the total number of industries established through the effort of this department as being 10, 15, 60, 150, 200, 250, 319, 579, 1000, 1500, "1068 manufacturing and 1232 non-manufacturing", 6000, and "many hundreds." Others report on a per annum basis showing their results for a single year to be 35, 40, 86, 150, and 350. In one instance, an agent reported "one large and 5 small industries per month." Another stated "8 to 10 so far this year." One department was successful in establishing 500 new industries from 1929-1931. Another department claimed credit for 25% of all industries located in the territory.

The industrial agent furnishes periodical reports to his superiors covering the work of his department, under the following heads: Number of new inbustries established, number of old industries expanding their plants or increasing their activities as evidenced by the freight tonnage carried during the particular period.

Copies of these reports are sent to the traffic representatives of the railroad. These reports outline the more

important activities of the department for the period covered, such as the location of new plants, the nature of business of new industries, the number of hands employed and other pertinent information.

The annual statement summarizes the monthly reports. In the case of one railroad, the summery statement is compiled in statistical form according to (a) the number of industries ready for operation and those not ready for operation, (b) diversity of industries and (c) number of sidings installed.

Mention has already been made of the manner in which the industrial agent collects and distributes this information.

Many of the other results of the work of the industrial department are not susceptible to tabulation. One cannot ascertain, for instance, what part of the increase of traffic on the whole line is due to the work of the industrial agent. He assists established industries as well as new industrial ventures.

Every increase in industrial activity adds to the wealth of the territory. More people are employed; the purchasing power of the community is increased; the revenues of the railroad are greater. One cannot ascertain how much of this increase in revenue is directly due to the efforts of the industrial agent.

Not all of the work of the industrial agent is susceptible of measurment in dollars and cents. Many of the accomplishments of his department add only to the intangible assets of the railroad. One of its chief aims is the creation of a friendly feeling for the road in the public which it serves.

PART II

Agricultural Department

PART TWO

AGRICULTURAL DEPARTMENT

CHAPTER VIII

INTRODUCTION

In addition to industrial development department, many of the railroads have established similar bureaus to encourage agricultural expansion within their territories. In some instances, the procedure has been reversed and the emphasis laid upon the latter type of development. This particularly true in the case of some Western railroads.

The prosperity of the railroad rests largely upon the prosperity of the farmers. The railroad gets not only the freight revenue from shipping out the agricultural products but also from shipping in manufactured products for the consumption of the farmers. Therefore, the railroad agricultural agent tries to help them increase their product and at the same time to decrease the per unit cost of production, and so insure a higher return for their products. He strives to help in the solution of many of their individual problems. Various means are employed to educate the farmers. Fortunately for the railroad development agent, there are many other organizations that are doing the same kind of work. So, the agricultural agents of the railroad accomplish much more with less effort through co-operating with and helping to coordinate the activities of existing rural organizations. Some railroads have in their territories large area of unoccupied farm land which it is the duty of the agricultural agents to help dispose of. They encourage colonization and immigration into the territories so increasing their prosperity. They are also interested in reclaiming lands by clearing, draining and irrigating them in order to make them arable. [1] All these activities are undertaken with the ultimate object of increasing the friendly relation between

1. See Appendix III, Analysis of the Principal Lines of Werk Undertaken by Railroad Companies for the Promotion of Agriculture.

the railroad and the farming public and building up the traffic of the railroad. As early as 1880, one railroad embarked upon the experiment of creating a special department to deal with agricultural problems. Other similar departments were created in 1885, 1890, 1892, 1894, 1895, 1900 (two railroads), 1906 (2), 1907, 1908, 1910, 1912 (3), 1913 (2), 1914 (2), 1915 (2), 1916 (2), 1918 (4), 1919, 1920, 1921, 1923 (4), 1925 (2), 1926 and 1929 (2). [2]

An investigation made as early as 1911, by John Hamilton, revealed that the railroad agricultural departments were undertaking the following lines of work:—[3]

1. Promoting the colonization of agricultural lands.
2. Encouraging and assisting farmers in planting diversified crops.
3. Employing agricultural experts to instruct farmers with respect to the selection of seed, the planting, cultivating, and preparation of crops for market.
4. Furnishing names of agricultural people to the National Department of Agriculture, to the State department of agriculture, and to the State experiment stations for use in distributing agricultural literature.
5. Organizing and conducting demonstration farms.
6. Furnishing speakers for formers' institutes.
7. Sending out good-road, seed, soil, and better-farming special trains.
8. Equipping exhibit cars with agricultural products and sending them over their lines.
9. Defraying the expenses of lecturers to farmers' institute meetings.
10. Preparing and printing agricultural bulletins of information and distributing them among farmers.
11. Advertising agricultural meetings and providing assembly halls for the accommodation of audiences.
12. Furnishing free of cost the use of farm lands to agricultural colleges and experiment stations for demonstration and experiment work.
13. Providing special rates and free transportation to farmers' institute workers.
14. Give free transportation and reduced rates to farmers attending conventions and annual meetings at State agricultural colleges and experiment stations.
15. Cooperating with the agricultural colleges and experiment stations in their educational work by granting special rates to students.

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2. Questionnaire: "Dates the agricultural department was first established."

3. pp. 5-6, The Transportation Companies as Factors in Agricultural extension, John Hamilton, Circular 112, U. S. D. A.

16. Organizing agricultural departments in their boards of railroad management.
17. Furnishing pure-bred stock to farmers for breeding purposes.
18. Offering prizes for the best-managed farms.
19. Collecting data respecting and furnishing reports of the condition of crops along their lines.
20. Providing refrigerator cars for local trade.
21. Sending out experts to give instruction respecting the picking and packing of fruits and vegetables for market.
22. Corresponding with agricultural commission men and giving them the names and addresses of farmers, fruit and truck growers along their lines.
23. Furnishing daily, through their local agents, telegraphic reports to farmers respecting the condition of the markets.
24. Providing soliciting agents for the sale of agricultural products in market and terminal centers.
25. Furnishing assistance in the selling of produce.
26. Warning producers against irrsponsible comission men.
27. Testing soils in various localities for the purpose of advising settlers as to proper locations for growing special crops.
28. Assisting farmers to secure the best markets for their special lines of produce.
29. Informing farmers as to the customs and requirements of the various markets.
30. Publishing books and circulars of information showing the character of the lands along their roads and their adaptability to various crops.
31. Advertising lands open for sale to settlers.
32. Purchasing and dividing up large ranches into smaller farms and disposing of them to home seekers.
33. Organizing poultry, dairy, horticultural and truck-growers' associations.
34. Organizing companies for erecting canning factories and creameries.
35. Equipping cars with agricultrual exhibits and specimens of seeds and grains, sending them over their lines, and distributing samples to farmers for testing.
36. Aiding in securing a supply of agricultural laborers and transporting them at reduced rates.
37. Equipping and conducting experiment farms.
38. Furnishing pure seed and providing inoculating material for use in growing alfalfa, cowpeas and clover.
39. Giving information respecting and rendering direct assistance in the drainage of swamp lands.

The next year, another investigation was made by Frank Andrew. A table showing the principal lines of work then

undertaken by railroad companies for the prom tion of agriculture is reproduced in Appendix III. [4]

Since these two investigations, a great number of railroads have established agricultural departments and the range of their activities has been increased. Brief statements are received by the author from the agricultural agents of many railroads in the various sections of the country regarding the function, purpose and activities of the agricultural department. The work of the agricultural department differs in various territories. The program of work is similar or supplemental to that of the government extension service, and other like agencies. It aims at increasing the prosperity of the territory in order to increase the traffic of the railroad. Its activities are intended to increase the goodwill of the farmers. The methods and projects applied are described in the following pages.

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1. Frank Andrew, "Railroad and Farming," 1912, United States Department of Agriculture, Bureau of Statistics, Bulletin 100

CHAPTER IX

ORGANIZATION

Composition; Executive; Manager and Chief Clerk; Agricultural agent; Specialists; Clerical Force; Officials Reported to; Size of the Department; Relation between Agricultural and Industrial Departments; Qualifications of Agricultural Agents.

The organization of the agricultural departments in the railroads assumes a great variety of forms. Almost no two of them have the same set-up.

In the following passages, an attempt has beem made to list the differences in composition and title of the agricultural departments officials of about thirty railroads:[1]

Railroad 1.—Manager, assistant manager, general agricultural agent, agricultural agent and two special representatives.

2.—General agricultural agent, 3 agricultural agents.

3.—General agricultural agent and four agricultural agents.

4.—Agricultural development and immigration agent, agricultural development agent and agricultural and marketing agent.

5.—Supervisor of agriculture and a large force.

6.—Agricultural development agent, coloniztion agent, and 2 agricultural agents.

7.—General agricultural agent and assistant general agricultural agent.

8.—General agricultural agent and 3 agricultural agents.

9.—Agricultural agent, farm manager and manager of demonstration farm.

10.—Agriculturist and secretary.

11.—Agricultural development agent and general colonization agent.

12.—Agricultural agent.

13.—General agricultural development agent with a force of 23 to 30 people.

14.—Development director, agricultural and industrial agent, and two agricultural agent.

15.—Agricultural and colonization department with a general agricultural agents.

16.—Agricultural development agent; horticultural agent, agricultural agent and editor of publication.

17.—Two agricultural agents.

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1. Questionnaire: "Personnel of the Agricultural Department".

18.—Eight agricultural agents and five immigration agents.
19.—Agricultural agent, three assistant agricultural agents, one livestock specialist and two district horticulturists.
20.—Director of agricultural development, farm market agent, dairy development agent, colonization agent, horticulture agent, poultry development agent and five agricultural agents.
21.—Manager industrial and agricultural development and an agricultural representative.
22.—Manager agricultural relations and a general agricultural agent.
23.—Industrial and agricultural agent and assistant agricultural agent.
24.—Two agricultural agents.
25.—Manager of Develoyment service; forester, assisting forester, forest ranger, general agricultural agent and general horticulturist.
26.—Four agricultural agents,
27.—Supervisor of agriculture and refrigeration, supervisor of farm market, dairy agent, horticultural agent and assisting supervisor of refrigeration.
28.—Agricultural agent and assisting agricultural agent.
29.—Manager of development and colonization department and assisting manager.
30.—Director of agricultural development and three agricultural agents.

From the above list, one can see that there is no set form of organization in this branch of the service. Every railroad arranges its own agricultural department to best conform to the needs of its particular territory. In spite of the fact that no two are exactly similar in set-up, a general principle appears to underIe all of them. On the smaller railroads, all the officials in the agricultural department work in the same office, but most of the agricultural departments find it necessary to station their agents in branch offices scattered over the entire territory traversed by the lines. Under this system, there is always a central office in which the head of the department is located. Here there are several specialists together with the necessary clerical force. The employees in the branch offices are generally the agricultural agent and his assistant or secretary. The personnel of the agricultural department can be classified in five main groups viz: the executive, the manager, the agricultural agents working in the field, the specialists and the clerical force.

The Executive.—The executive is the head of the department. He is called the manager, the director, the supervisor, the general agricultural agent or by some other appropriate titles. He controls the general policy of the department, co-ordinates the duties apportioned to the various members of his force, approves or disapproves the activities proposed by them and assigns and supervises the work of the department. He has to some extent the power of appointment and removal and other executive authority. He represents this department of the railroad before outside organizations and co-ordinated the work of the agricultural department with that of other departments in the railroad. He confers with the president and vice-president in determining the policies of his department. He holds conferences with his co-workers in planning development programs in each territory. The programs run from three to ten years. When matters arise requiring his personal attention, he makes an inspection and directs the local agricultural agents as to their disposition. He meets leading growers, producers, jobbers, wholesale men and shippers. He visits and helps the various agents when necessary. He may take direct charge of the most important territory.

His office is usually located in the main office of the railroad. As the larger part of his work consist of correspondence with the various agricultural agents and outside organizations, he spends much of his time in the office. The subordinate officers in the branch offices report to him from time to time. In his office, all necessary data and correspondence are kept. He represents the railroad before the public in connection with such activities as demonstration trains, fairs and agricultural meetings.

The Chief Clerk or Manager.—In the larger agricultural departments, a chief clerk or a manager is employed to supervise the routine work of this division. As the executive spends part of his time in the field, someone must assume the responsibility for the work of the central office.

The Agricultural Agent.—The agricultural agents are the pivotal figures of the department. The other members of the staff are of secondary importance, with the exception

of the executive who is really the chief agricultural agent. These employees relieve this official of necessary routine. The work of agricultural department varies in different localities. One region may be devoted to a single crop while others to dairying, poultry raising or truck gardening. Because of this diversity of interests, the territory of a large railroad system is usually divided according to the types of farming persued.

As the work of the agricultural agent is closely allied with that of the state agricultural college extension service, it is necessary for him to be in close contact with this institution. For this reason, many of the offices of the agricultural agents are located on or near their campuses. It is necessary for the agricultural agent to be thoroughly familiar with the promotional programs of the state agricultural colleges. They are usually graduates of such institutions. They know the problems facing the farmers of the state, having usually had practical experience of their own. Sometimes, they have served as agricultural instructors in rural high schools, agricultural extension agents or researchers. Their work is in the field. They are in constant contact with the farmers, taking great pains to assist these clients of the railroad with their problems. Some of these involve farm management agricultural engineering crop and soil management, marketing, livestock management, horticulture and insect control.

They also co-operate in other agricultural promotional work. A more detailed discussion of the activities of the agricultural agent will be deferred to later chapters.

Specialists.—The activities of the farmers even in a single region may be so varied that it is impossible for the agricultural agent to be an authority regarding all of them. In order to compensate for this deficiency, the railroad employs specialists where specific knowledge is necessary. These travel over the entire system to help the agricultural agents. The type of specialist employed depends upon the nature of the principal farming industries in the territory traversed by the railroad. For example, where the farmers are engaged in dairying, a dairy spe-

cialist is employed. Among the specialists at work in the agricultural service of the railroads, the following are the most commonly employed: dairy development agents, farm marketing agents, horticultural agents, poultry development agents, farm managers, editors of publicity, foresters, live stock specialists, home economics agents, colinization agents, immigration and land agents.

A description of the functions of a few of these specialists will illustrate the types of service rendered by the department. The activities of the *farm marketing agent* cover the entire territory of the railroad. He works with individual growers, co-operative marketing associations and county agents, in assisting with problems of marketing the commodities grown along the railroad, and where time permits, gives personal service in locating markets for the producers. He keeps in constant touch with market conditions for various farm products, the movement of farm goods and general state of the market. He collects information from producers as to the amount and quality of products and their asking prices for same, and advises them as to market conditions. He also keeps in close touch with jobbers and dealers and serves as a medium of communication between them and dealers.

The principal duty of the *colonization agent* is to interest the public in the farm lands along his railroad. He furnishes information to individuals wishing to settle in his territory; and co-operates with real estate brokers or banks in finding suitable tracts for their clients. He keeps lists of land for rent or for sale and distributes these among people interested in such matters; brings buyers and sellers together; accompanies prospective settlers on inspection trips and later helps them to get a start.

The activities of a *dairy agent* cover the entire territory in as much as dairying is an industry common to many sections of the country. He co-operates with the county farm agents and takes a leading part in farm extension work. He also solicits co-operation from chambers of commerce and other interested agencies in carrying out his program. He renders valuable service to the farmers of the territory by helping them to locate suitable

breeding animals as the foundation of their dairy herds. He arranges dairy cattle sales and exhibits in fairs, shows and on demonstration trains. He gives advice to farmers regarding diseases, feeding and sanitation problems. He is constantly seeking opportunities to advance the prosperity of the dairy industry.

The work of the *poultry development agent* also covers the entire territory because poultry raising is an industry common to many sections of the country. One important railroad system has established a chain of poultry demonstration farms in charge of the station agents at various points in the territory. The chief duty of the poultry development agent is to co-operate with individual farmers by helping them to select the breed best suited to the locality, assisting in the improvement of the flock and in the keeping of adequate records.

Owing to the diversity of the field of horticulture, the work of the horticultural agents varies according to types of production. Such specialists are those who work with the apple growers, peach growers or the raisers of small fruits such as strawberries. They introduce the types of trees or plants best adapted to peculiar conditions of soil and climate. They inspect individual orchards and beds and advise the growers concerning production problems and organize orchard tours.

As the greater part of the work in the agricultural department consist of correspondence and most of its contacts with the public are via. the printed page, it is necessary for this department to have a large *clerical force.* They handle the detail work of the office. In addition to the clerical force and the traveling agents of the department, railroads employ either permanently or as occasion requires, experts to prepare articles and booklets dealing with the latest developments in the fields enumerated above.

The agricultural department is usually a division of the traffic department. According to replies to inquiries made while preparing this thesis, eight departments report to the presidents of their roads, one to assistant to president, eighteen to the vice-president in charge of traffic, one to the assistant

vice-president, two to the general traffic manager, three to the traffic manager, three to the freight traffic manager, one to the assistant manager, one to the general freight agent, one to the assistant general freight agent, one to the receiver, one to the manager of industrial and agricultural development and one to the general industrial agent. It can readily be seen from the above that, as in the case of the industrial departments, most of the agricultural departments report to the higher officials of the railroads, including presidents, vice-presidents and their assistants. A few of them report to the lower officials in the traffic department. As in the case of industrial department, conditions within the railroad itself determine the treatment of its agricultural department. It assumes a position of importance in a railroad traversing a territory in which farming is the principal industry. If a great volume of traffic is to be expected, it is but natural that more emphasis should be laid upon agricultural development work. Again, a larger railroad can afford a much more completely staffed and equipped agricultural department than the smaller ones.

The policy of the management greatly effects the size and quality of the agricultural staff. Although railroads usually establish agricultural departments on their own initiative, it is not uncommon for them to be urged in this direction by the work of their competitors. Upon seeing that other railroads obtain beneficial results from this type of expansion, those without such service are often forced to take steps to meet competition. Satisfactory results such as increased revenue from rural shipping points naturally foster the interest of the directors of the company in this branch of its activities.

Although both the industrial and agricultural departments are working for the development of railroad traffic, yet the qualifications demanded by the different types of work call for diametrically opposite training. Where these departments have been grouped under one head, it would appear that either industry or agriculture is regarded as being of slight importance to the welfare of the railroad. In some instances, these functions are directed by a single official and the department given a title indicative of the dual nature of its work. The general practice, however,

is to seperate these functions entirely. The best results can only be anticipated when each department is allowed to perform its own functions. It is apparently not to the advantage of the railroad when these functions are grouped together. While the direction of these departments is usually seperated, it is customary for the heads of both of them to report to the same administrative superior. For example, where the industrial agent reports to the vice-president in charge of traffic, the agricultural agent also reports to this official. This procedure is followed by the Atlantic Coast Line; Chicago & Eastern Illinois; Chicago, Burlington & Quincy; Kansas City Southern; Louisiana & Arkansas; and Missouri Pacific Lines. On the Canadian National and Central of Georgia railways, both departments report to the president. Those having both report to freight traffic managers are the Atlanta & West Point and Union Pacific railroads. The Illinois Central System has both report to the general traffic manager. On the Atlanta, Birmingham & Coast and the Gulf, Colorado & Santa Fe both departments report to the general freight agent. The Nashville, Chattanooga & St. Louis Railway combines these departments into an Industrial, Agricultural and Public Relations Division reporting to the vice-president and traffic manager. The Commercial Development Department of the Baltimore & Ohio Railroad includes both the industrial and agricultural bureaus. It is headed by the Executive Assistant to Vice-President who in turn reports to the vice-president.

Some railroads have only an agricultural department while others have only an industrial department. Some may have both departments but lay special emphasis upon one of them viz: western railroads lay more emphasis upon the agricultural department and the eastern railroads lay more emphasis upon the industrial department.

The remainder of this chapter is devoted to an enumeration of the various qualifications of an ideal agricultural agent. The success of the work of the department depends upon his ability. Agriculture is the basis of industry, yet it is tending to be less and less profitable. The agricultural agent has a great field for real service. Through his efforts,

efficiency in production can be increased, wastes eliminated, and profits enlarged. The farmers are generally willing to adopt new practices when convinced of their effectiveness. The railroad hauls out farm product and brings back manufactured goods. Greater prosperity on the farm therefore means greater profit for the railroad.

The agricultural agent must be a leader, a teacher, a good mixer, a good salesman, a good talker, a good writer, a student of human character and of his own job. He must be fair, friendly, even tempered, neat in appearance, well read, tactful, enthusiastic, public spirited and willing to co-operate with others.

In chapter I, it has been shown in detail how a development agent should qualify himself for useful service. He must be strong physically and mentally, have a pleasent personality and good character and be able to write and talk well. In addition to these general qualifications, an agricultural agent must equip himself with a comprehensive and thorough knowledge of the field of agriculture in general and in those phases in particular pertaining to the specific problems of the territory regarding its products and their markets; understand the policy of the other development agencies and find the best way to cooperate with them. He must know the policy of the competing railroads in the territory. A knowledge of land economics, business, history of agricultural development, the geography and industries of the region, world trade conditions, the nature and operation of the produce market, hedging, grading, production methods, manufacturing of food products and the proper method of shipping and packing agricultural products for the market is essential. This should be further supplemented by some special scientific training in agriculture, including not only the productive processes of crop and animal growth, but the control of insects, plant and animal deseases and other limiting factors. He should be versed also in the business management of farm and co-operative organizations. In order to be able to teach the most up-to-date methods, he must keep fully informed as to current developments in the field of agriculture.

Most of the workers in this field are graduates of agricultural colleges who have also had experience in extension work, in teaching, in researching, in experimentation, in farming, in demonstration or in agricultural development. The more diversified their previous training, the better is their opportunity to accomplish results. Experience records of some agricultural agents are quoted in appendix V.

According to Mrs. Fullerton: "He must be an agronomist, a botanist, a pathologist, a biologist, a chemist, a geologist, a forester, he must know some thing of animal husbandry and breeding, he must be very particular, never to over rate or under rate, he must know definitely when to side track and when not to side track, he must be a good showman, he must be a wonderful exhibitor, and he must have a nose for news, a sense of where and when and how to put the news, but above all, he must have personality plus and understanding heart and a sense of humor."[2]

2. American Railway Development Association News.

CHAPTER X

METHODS

Office, Reference and Schedule of Work.—Where a railroad covers a large territory, the agricultural department usually establishes a number of branch offices for the convenience of those having business with it. These branches are often located near the state agricultural colleges. Each office is supervised by a local agricultural agent. The arrangement and equipment of the agricultural department is in many respects similar to that already dealt with under industrial department, except that where the latter has industrial maps, the agricultural section has maps showing its layout. There are county maps, shelves for magazines and agricultural reference material. Space must be provided for equipment used in giving agricultural lessons viz: charts, lantern slides, motion picture projection machines, testing apparatus, etc. In the footnote at the end of the chapter will be found an outline for a reference library which is a part of the agricultural agent's professional equipment.[1] .

The director of the department spends approximately two thirds of his time in the office while the agricultural agents devote most of their time to field work. In the footnote will be found excerpts from the daily reports of several agricultural agents.[2] These describe the routine of this department. The agents report to the main office keeping a memorandum of daily events, a duplicate of which is filed with the report just mentioned. The memorandum gives the names of persons met during the day's work, subjects discussed and the results. The agricultural agent also keeps an itinerary of his weekly trips, showing places visited and the nature of business done. Schedules for the work of this department are made a year or more in advance so that appropriations may be set aside on an annual basis. A typical working schedule is reproduced in the footnote.[3]

1. *Reference* to be kept in office or made available when needed: *Books* on all agricultural subjects including those on farm management, marketing, agricultural engineering, agricultural industries,

1 (continued)

plant and animal deseases, insects, rodents, animal husbandry, dairying, poultry, field crops, horticulture, forestry, soil, fertilizer, weather, and home economics. United States Census raports. Extension Service Handbook by United States Department of Agriculture and its index to yearbook, farmers' bulletins and experimental station records. A list of its publications as well as those of agricultural colleges and other organizations. Cyclopedia of agriculture. Telephone directories of important cities.

Periodicals and Reports.—Magazines on various lines of agricultural subjects. Proceedings, annual reports and other publications of agricultural societies and allied organizations and get on their mailing lists. Clippings of articles describing the activities of the department as well of other organizations in the territory. Market reports, experimental station reports, situation reports. Agricultural statistics and statistics of the agricultural traffic on the line.

Lists.—Lists of names on own railroad with whom the department has constant contact, list of facilities on the lines for shipping agricultural products, list of agricultural organizations and institutions with a list of personnel, directory of agricultural and home economic leaders, list of civic organizations, settlement or colonization companies, agricultural industries, firms for agricultural supplies, dealers, post offices, etc. on the line. List of county agents, specialists and workers in the colleges, personnel of the United States Department of Agriculture, farm bureaus, co-operative marketing organizations, live stock registry associations and other associations. List of farmers and boys and girls the department has contact with.

2. *Excerpts from daily reports;*

(a) Met with county agent X, who held eleven community meetings to encourage strawberry production. The strawberry crop is being encouraged here in supplement to peach production and the project is being worked out in co-operation with the Chamber of Commerce and county agent and our department. 165 acres were pledged in these eleven meetings and sufficient additional acreage can be secured to guarantee car lot shipments.

(b). Called on X, Farm Superintendent of the State Hospital, who is clearing land to set 200 acres of strawberry, of which 40 acres have been prepared for planting. X Company is contracting for the berries from this acreage and has agreed to advance the plants, the cost of which to be deducted out of the first crop.

(c). Met with group of business men to plan strawberry acreage campaign for the territory. It is agreed to make an effort to get 200 acres set in the spring of 1932.

(d). Attended watermelon festival sponsored by X Chamber of Commerce. There were about 1000 farmers in attendance. I addressed the meeting on the subject of diversified farm interest. The community has produced close of 1000 acres of peanuts this year for market and farmers are interested in producing additional cash crops other than cotton.

2. (continued)

(e). A farmer informs me a party is attending an insurance conference in Washington, get the passenger traffic.

(f). Attend a meeting of industrial department. Better knowledge of our service, mutual interest in location of industries which mean a community development, such as milk plants, canning factory, limestone plants, etc.

(g). On the advice of X, I come here to take the livestock agent to see Y, secretary of livestock product association, to offer him our assistance in routing several 1000 cattle he ships out of the West. I am working with the farm bureau that will receive these cattles.

(h). Representatives of all railroads meet at State Board of Agriculture to determine the best way to induce people to ride the train to attend fair.

(i). Attending a meeting.

(j). As a member of board of agriculture, I attend meeting of directors. Got $6,000 to co-operate with the $75,000 poultry building for the state fair poultry show which I have charge this year.

(k). Conference at State University to run meat train, Home economics department does its part. County agent supervisor and animal husbandary extension specialist to prepare itinerary for 10 days. Also settled with club department what they will do in our beef calf club in X County. We plan to ship one car in the fall. Make two cars to follow next year.

3. *Schedule of Work for the Year:*

The number of demonstration trains to be run.

The number of clubs to be organized and the number of prizes and scholarship to be offered.

Participation in national and local festival days as Apple Blossom, Water Melon, Peach, Cherry, Farmers' Week, etc.

Participation in fairs and exhibits.

Publications

Increase in personnel of the department.

Membership to various organizations.

Subscription to magazine and others.

Special agricultural meetings and special trains.

Demonstration farms and demonstration plots.

Motion picture and other illustrative material for agricultural education.

Program of work in different lines of agricultural activities in each section of the territory.

Make surveys.

CHAPTER XI

ACTIVITIES

Summary of Activities; Demonstration Trains (Plans; itinerary; the program; the exhibits; demonstrations on flat car; publicity; equipment; follow-up); Boys' and Girls' Clubs; Contacts; Office Calls; General Meetings; Agricultural Information Service; Correspondence; Short Courses; Tours; Demonstrations; News Release and Magazine Articles; Publications.

The actual work of an agricultural agent may be summed up under the following heads: instruction and demonstration.[1] As to the former phase, he seconds the efforts of the United State Department of Agriculture, state agricultural colleges and allied workers in emphasizing the advantages of crop rotation, proper treatment of the soil by the use of lime, fertilizer and planting of legume crops.[2] He gives expert advice in matters pertaining to crop raising,[3] horticulture,[4] dairying, poultry, live stock raising,[5] agriculture engineering,[6] colonization,[7] control of insects, deseases and rodents,[8] home

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Questionnaire;—

1. Method demonstration (33-14-9); Result demonstration (33-13-10); Demonstration farm (14-35-7) Demonstration trains (40-13-3) and "follow-up" (36-13-7)
2. *Fertilizer and Soil;* Lime campaign (40-12-4); Use of various fertilizers (47-5-4); Control moisture in soil (35-12-9); Crop rotation (47-5-4); Crop selection (46-5-5); Soil test (34-14-8)
3. *Field Crops:* Seed improvement (49-4-3); Contests (31-17-7); Improvement of methods (46-6-4); Crop protection (29-17-10); Harvesting (34-15-7); Storage and warehousing (39-11-6); Utilization of crop (45-5-6)
4. *Horticulture:* The choice of seed (37-14-5); Program of planting (34-16-6); Pruning (32-16-8); Thinning (31-17-8); Spraying and dusting (37-13-6)
5. *Animal Husbandry:* Pure bred (45-6-5); Testing (36-14-6); Care (44-6-6); Feed (48-3-5); Management (50-3-3); Sanitation (42-7-7)
6. *Agricultural Engineering:* Machinery and equipment (24-23-9); Power and electricity (18-25-13); Building and improvement (29-18-9); Road improvement (11-31-14); Sanitation (19-25-12)
7. *Land Development and Settlement:* Attract settlers (43-10-3); Help new settlers (45-7-4); Help to increase the acreage of land by irrigation, reclaimation and drainage (32-19-5); Help farmers to get labor (25-24-7)
8. *Campaigns for the control of* : Animal diseases and insects (38-12-6); Plant diseases and insects (44-8-4); Weeds (36-14-1); Rodents (19-26-11)

economics,[9] marketing[10] and other phases of farm management.[11]

The railroads appear to have been pioneers in the matter of reforestation, for among their agricultural experts are found a number of qualified foresters.[12]

Instruction is given by means of lectures, pamphlets and other printed matters.[13] The radio[14] and motion pictures[15] are also extensively employed in this work.

Demonstration Train.[16] –Perhaps the most impresive form of agricultural education engaged in by the railroads is found in the demonstration trains. This has been proved to be the best way of instructing the farmers in improved methods. In a single day, such trains make from one to three stops. At every stop, they are met by all farmers who are interested in the project within a thrity miles radius. Such audiances vary in number from several hundreds to several thousands. On the trains all of the most effective methods of illustrating the lessons are used. The

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Questionnaire:—

9. *Home Economics*: Food and nutrition (13-33-12); Clothing (8-37-11); Home management (10-35-11); Gardening (24-24-8); Sanitation (13-51-12)
10. *Marketing*: Special pick up car for perishables (28-19-19); Advise own railroad to provide sufficient transportation, terminal and storage facilities for farm products (45-6-5); Study markets and marketing factors (50-4-2); Provide a list of dealers (45-8-3); Help to obtain allied industries, as creamery etc. (55-0-1); Organize and help co-operative associations (46-7-3); Inspection before shipment (32-16-8); Teach grading, packing, storing, loading, etc. (45-7-4); Know the demand (47-4-5); Prepare for market (45-6-5)
11. *Farm management*: Educate farmers to solve problems (37-13-6); Help them to determine the right type and size of farming (38-11-7); Planning of crops (42-8-6); Record taking (25-19-12)
12. *Forestry* : Reforestation (29-17-10); Protection (27-18-11); Planting trees along railroad (14-30-12); Forest demonstration farm (4-40-12)
13. *Writings and Printings:* Correspondence (54-0-2); News release and magazine articles (46-7-3); Pamphlets (41-10-5); Poster and advertisements (41-10-5); Agricultuarl information service (37-11-8)
14. Radio (21-27-6)
15. Motion picture and other illustrated loctures (26-24-6)
16. Demonstration trains (40-13-3); "Follow-up" after a train (36-13-7)

train is properly called "a college on wheels." Here, the best results of experiments by the agricultural scientists are brought before the eyes of the farmers. The results achieved in this way surpass those obtained by any other short cut methods. The exhibits are arranged in logical order and explained by well informed demonstrators. The farmers are also given the benefit of listening to the best authorities on subjects which interest them.

Usually, the demonstration train is the opening event of a campaign. It introduces the idea to the farmers so that they are, in a measure, prepared to receive further instructions. Therefore, it would be a mistake to run a train without following it up with additional activities. One can scarcely expect the farmers to change their methods or adopt new practices by merely visiting the train. The railroad agricutural agents or the county agents follow this with more detailed demonstrations while what the farmers saw in the train is still fresh in their memory.

For example, when a demonstration train is run for the purpose of improving the breed of live stock, orders will be taken on the train for pure bred live stock to be delivered later. Local agents encourage the farmers who are interested in the project to purchase pure bred live stock and attend to all the details in connection with its delivery.

Demonstration trains are run covering practically every phase of agriculture. Soil testing, horticulture, breeding of live stock and poultry, home economics exhibits, dairy methods, all from time to time have been demonstrated on appropriately fitted trains. As an illustration of the effectiveness of this method, in 1904, two railroads ran "corn trains" with great success. They reached 670 towns in 96 counties, covered 1000 miles, made 1,085 talks and met 127,000 people. During the five years just previous to the running of the train, the average corn yield of Iowa was 33.5 bushels. The average of the next five years was 35.9 bushels. The increase of 2.4 bushels to the acre must be attributed largely to introduction of better methods, and some share of credit for this improved production must be given to the train. So much interest was aroused by this

enterprise that by 1906 such trains had been run in twenty-one states in the East. West and South.[17] An investigation made by the United States Department of Agriculture in 1910 showed that fifty-two of the leading railroad companies had engaged in this form of disseminating agricultural information during that year.[18] An attendence of 189,645 people was reported for 26 trains. "This movement reached its peak in 1911, when 71 trains were run in 28 states, and the attendance was 995,220. In 1914, there were 34 trains in 17 states, with an attendance of 474,906. For several years, the running of such trains undoubtedly did much to arouse the interest of farming people in improved agricultural practices and in the work of farmers' institutes, agricultural colleges and experiment stations."[19]

When first introduced, these trains were believed by many to be an absurd fad, and it was freely predicted that they would not last. It is found, however, in the states through which trains have been operated for as long as ten years, that when the second, third and fourth trains went over the road, they were met each time by larger and more interested audiances. So far as can be judged, they accomplished greater results than did the first trains.[20]

After the train has been run into a section, there is always some noticable improvement in line with the teachings of the demonstration train. After a live stock train has been run, for instance, great improvement may be noticed in the live stock and the railroad usually gets the benefit of increased traffic. After the running of soil and crop improvement trains, more lime and fertilizer is shipped into the territory and more

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Questionnaire:—

17. p. 28, A. C. True, A History of Agricultural Extension Work.
18. p. 6-7, John Hamilton, The Transportation Company as Factors in Agricultural Extension, United States Department of Agriculture, Office of Experimental Stations, Circular 112, 1911
19. p. 30, A. C. True, A History of Agricultural Extension Work,
20. p. 178, Albert H. Leake, The Means and Methods of Agricultural Education.

crops are shipped out. Demonstration trains have been effective in stimulating increases in traffic. Railroads are interested in the prosperity of the people along their lines and the farmers become prosperous as their methods are improved. Another intangible benefit from running such trains is an increase in good will toward the railroad on the part of the farming public. All these facts account for the continued interest of the railroad in the demonstration trains.

Plan.—Projects of this kind, which entail large expenditures of both money and time, require the approval of the higher authorities of the railroad. The president may have to pass upon the appropriation for this type of project. Plans must be decided usually a year in advance, so that the expenses of the demonstration train may be included in the annual appropriations. In making his plans it is necessary for the agricultural agent to be well acquainted with the program of the agricultural extension services of the various state agricultural colleges. In order to secure co-operation from the state agricultural colleges and experiment stations, it is the policy of the railroads to conform their plans to the state agricultural education programs. If those programs are emphasizing the improvement of soil or live stock, a soil testing train or a live stock train will be run.

Itinerary.—After it has been decided to run such a train, the next step is to choose the stations at which it will stop. It must stop at the points where the lessons are most needed. Contrary to the common belief that the best results are obtained at the points where the train can draw the largest audiance. It is the concensus of opinion among experienced agricultural agents that in order to get the lessons across, the trains must avoid large crowds. In such an audiance, the percentage of the non-farming public is apt to interfere with the effectiveness of the demonstrations. Children and excitement seekers are constantly in the way of the farmers who board the train with a real desire to learn. The ideal group is from one to two hundred actual farmers. This can be obtained only in the small rural communities. Following a similar

line of reasoning, it is also objectionable to have too many entertainment features in the program, as these draw an undesirable element.

Another factor which may have a bearing upon the choice of stopping points is based largely upon the selfish interest or the railroad running the train. It is preferable for the train to stop in territories served either exclusively by the railroad or where the railroad is getting a great part of the agricultural traffic. After all, the chief reason for the train is to increase traffic. After the stopping points have been decided upon, the routing of the itinerary is a simple matter. If the program is entirely new to the territory or if the program is elaborate, the train will stop for a whole day at each point. For simpler programs, the trains may cover two or three points in a day. In such cases, the local authorities will be responsible for arranging programs which will fill up the remainder of the day.

Program.—The main program is usually for the farmers to inspect the exhibits and to listen to the addresses. The program should be well arranged so that every thing will receive its due share of attention. The exhibits are open to the public all the time. While some people are in the exhibit cars, the others are listening to the addresses. A schedule is made so that each speaker is alloted a definite amount of time. A railroad man, either the agricultural agent or some other official, usually gives the introductory address. The local representative such as the county agent or a representative of the chamber of commerce gives a talk regarding the essential problems of the locality. The other speakers will tell how these problems should be solved. After a few addresses have been made, a short interval is set apart for discussions and demonstrations. An intermission intervenes for lunch and entertainment. The afternoon will be devoted to more addresses, discussions and demonstrations. Circulars are distributed for the people to take home, as a reminder of the lessons taught on the train. The audiance is told where to get further information and detailed instructions. Other events are an address by some personage of local importance, registration of the names of farmers, motion

picture shows, lunch, refreshments, music, conferences, surveys, tours, contests, prizes, sales, special store window display, floats, pageants, parades, distribution of bulletins and other special inducements. The program included in a train varies according to the nature of the projects, viz: Testing of soil, treatment of seed, taking orders, diagnosis of diseases or weeds, demonstration of grading, packing and loading and giving away pure bred animals or line as prizes.

Exhibits and Lectures.—Most of the exhibit material is planned and constructed by the extension department of the state colleges. Sometimes, the United States Department of Agriculture assists the colleges in making the exhibits. The same applies to the lectures and other means of spreading new agricultural knowledge. The railroad's contribution consists primarily in the transportation of the men and equipment. However, the railroad will always have one or more agricultural agents and other officers accompany the train to look after the comfort of the group and the efficiency of the operation of the train. The director of the agriculiural department or one of the higher officials of the railroad introduces the speakers and explains the purpose of running the train. He makes use of this opportunity to emphasize the desire on the part of the railroad to be of service to the farmers and their families. The railroad makes the necessary arrangements.

The exhibits are arranged in such a manner that things of like nature are grouped together while at the same time, displays follow one another in such logical order that the lessons can be readily understood and easily remembered after the train has departed. Sufficient time should be allowed for viewing the exhibits. Crowding of the train should be avoided. This can be accomplished by arranging the people in definite groups and admitting one group at a time.

Certain types of projects are demonstrated on a flat car which is also used as a platform for addresses. The various breeds of live stock may be exhibited on this car, it may be used to demonstrate methods of using a spray

or other equipment, of culling chickens cutting carcasses, and to accomodate larger exhibits such as a poultry house, large machinery, club demonstrations or home economics demonstrations.

Publicity.—Among other duties usually assigned to the agricultural department of the railroad in connection with a demonstration train is that of publicity. The railroad prints large and small posters to be distributed throughout the region covered by the train. These posters are sent to station agents, post offices, banks, merchants, county agents, news papers, influential leaders, farm organizations, breeder associations, and schools, along with a circular letter asking them to post and to distribute them. Several news releases are sent to the papers. These are written in such a manner that they may be printed as they are or revised to suit local conditions. Some papers publish interviews. Sufficient data is furnished for a number of articles on the subject. Cuts, illustrations and photographs are sent on request. The following methods of publicity are more or less commonly employed: street streammers, pennants, dodgers, automobile-windshield stickers, tags, buttons, and handbills for inclusure in store packages. Special contests for slogans, limericks, essays, posters are conducted to arouse local interest before the arrival of the train. More people are attracted where the movement is backed by an enthusiastic local leadership. This is accomplished by holding several conferences with the local chamber of commerce, merchants, county agents, and other who know exactly what means should be adopted to attract the desirable element to the train. They can enlist the full co-opration of the local merchants and press, take care of local programs and make other necessary arrangements. They not only draw attention to the passing event but serve to keep active the interest thus aroused. The bankers assist in financing, the county agent in the follow-up and the merchants in supplying the farmers with the material and equipment required in adopting the new practice. Sufficient time should be allowed for the necessary arrangements and advertisement. Publicity should be obtained not only before but also during and after the running of the train.

Equipment.—The chief function of the agricultural department of the railroad in connection with demonstration train is to supply the travelling equipment. Although this is usually the problem of the operating department of the railroad, the agricultural agent must specify the kind of cars needed. These usually consist of auditorium cars for lectures or the showing of motion pictures; flat cars equipped with amplifier, if possible, for lectures and demonstrations in the open air; other flat cars for larger exhibits; a power car for electricity; baggage car for live stock; living quarters consisting of Pullman and diner; exhibit cars; a business car for tests and conferences; a car for the demonstration of methods of loading of farm products and other similar cars. The number of cars required varies in each case. The length of the train ranges from a few cars to twenty or more. A dairy improvement special, for instance may have the following cars: four or five cars of pure bred of three major breeds--Holstein, Gurnsey and Jersey; one lecture car; one car for living quarters; one exhibit car; one open flat car for demonstration and one power car. A soil special may have one lecture car; one car for living quarters; one exhibit car; one power car; cars for lime to be given away for experimenting on the farms and a test car. A horticulture train may consist of a power car, a flat car, an end door baggage car; a lecture car; an exhibit car; a combination diner and sleeper; a day coach for rest and a Pullman car.

The cars must be taken to the various points where the exhibits are to be installed several days in advance, in order to allow sufficient time for this work. When the train is ready, it must be run according to schedule.

Follow-up.—The interest stimulated by the demonstration train is kept alive through subsequent publicity. This is done by the publication of news articles featuring stories about the material shown on the train. The train is the opening wedge of a development program undertaken in the territory through which it passes. The demonstrations staged on the train serve to emphasize the work of the agricultural extension service. The county agent continues to emphasize the value of the lessons taught on the

demonstration train. This appears to be an excellent method of follow-up. For example, the Kansas's "Five Year Wheat Belt Program" in which the Santa Fe and Rock Island railroads co-operated, the railroads ran various demonstration trains at the start, in between and at the conclusion. These trains demonstrated the various wheat problems of the region including insects, smut, market, seed and rotation. The railroad agricultral agent co-operated with the county agent and supplemented his efforts. The agricultural agent tours the county, visits the farmers, keeping alive the connection thus established by correspondence and distribution of printed matter. The agricultural agent can assist the county agents in developing the suggestions made, organizing local leaders, giving free material for demonstration, taking orders, forming breeding circles, conducting contests, promoting club work, giving instructions, aiding in increasing membership in breeding associations and other organizations. After the train, arrangements are made with the local or other dealers to keep on hand products or equipment advertised in order to make it convenient for the farmers to adopt the practices shown.

Boys' and Girls' Club Work.[21]—Many railroads help to organize boys' and girls' 4-H clubs[22] as an indirect means of spreading scientific agricultural knowledge to the farmers.[21] When the club projects are successful, the older farmers in the community may be persuaded to adopt the new practices. Again, the boys and girls are farmers of tomorrow. If they are taught to accept scientific methods while they are young, they will be apt to adopt the same practices when they grow up.

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21. Questionnaire:—
Boys' and Girls' Club: Poultry (35-12-9); Potato (30-15-11); Melon (16-25-15); Canning (21-21-14); Calf (40-6-10); Pig (38-9-9); Dairy (37-9-10)-Forest (14-28-14); Judging (26-18-12); Sewing (17-25-14).
Methods of Encouragement: Prizes (33-16-7); Cash (17-27-12); Scholarship (12-30-14); Trips (36-16-4); Help to organize (39-8.9); Free material (22-21-13); Instruction and supervision (29-16-10)

22. *Define the terms 4-H club and Smith-Hughes School:*—
4-H club is a part of the extension program of all states. All 4 H club promotion is financed, as is all other agricultural and home economics extension in the states, by funds made available through

Agricultural agents often conduct clubs in the territory traversed by the railroad. Among them are poultry, potato, melon, canning, calf, pig and dairy clubs.[21] Methods of encouraging club work include prizes for exceptional achievements, trips to some national club meetings, scholarships at an agricultural college or cash prize.[21] The agricultural agent may help in organizing such clubs. He may have to supply the members with free material for their projects such as seed, lime, fertilizer or eggs. He may also have to give instructions and supervise the work.[21] Similar encouragement is given to Smith-Hughes Schools.

Contacts.—The railroad agricultural agent always tries to meet the farmers in his territory. He calls on them as often as circumstance permit. Besides meeting many farmers through personal visits, many opportunities for group contacts occur. Farmers may come to his office or the agent may meet them at agricultural meetings and fairs. Through such contacts, the agricultural agent learns the problems of the farmers and is afforded opportunities to exchange ideas with them. Such acquaintance will

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22. (continued)

appropriations by Congress under the Smith Lever Act of 1914, by state legislatures and by the several counties.

The term 4-H signifies the four things which must be trained by the boy and girls to insure success in club undertakings—head, heart, health and hands. The mind, or head, of the boy and girl must be trained to think, plan and reason, and the heart to be kindly and sympathetic toward the work and toward associates, so that all might work together; the health must be improved and kept good for efficiency and enjoyment; and the hands must be trained to be skillful. The symbol of the 4-H club is the four-leaf clover containing an H on each leaflet, the clover signifying the purpose for which the first clubs were created—soil conservation.

The primary purpose is to teach boys and girls and, through them, demonstrate to the community improved practices in agriculture.

The Smith-Hughes Act of 1917 provides funds for vocational teaching. It is an act to provide for the promotion of vocational education; to provide for cooperation with the States in the promotion of such education in agriculture and the trades and industries; to provide for cooperation with the States in the preparation of teachers of vocational subjects; and to appropriate money and regulate its expenditure.

encourage the farmers to discuss their problems with the agricultural agent, which is one of the best ways to increase the good will of the public toward the railroad.[23] Direct influence through personal contact is more apt to lead to the adoption of new practices. It is also an important factor in establishing confidence in information extended through meetings, news stories, bulletins and similar means and agencies. It is obvious that personal calls at the farms would not only be too expensive but also impracticable for the agricultural agent who covers a large territory, but such visits can be employed effectively to supplement other means which reach a larger number of people.

Office Calls—A more economical method of meeting the farmers is to ask them to call at the office. There is a saving of time and expense on the part of the agricultural agent. When a farmer comes into the office of the agricultural agent, he brings some specific problems on which he is seeking help. He is in a receptive frame of mind. The chief difficulty in this form of contact is that the agricultural agent serves a wide area and many farmers are too far away to be able to avail themselves of such opportunities.

General Meetings.[24]—Practically every agricultural agent assists, as opportunity affords in various local activities falling within the scope of his work. He makes an effort to attend all the agricultural meetings in the territory. He may assist in arranging meetings of various kinds for general agricultural purposes. In such meetings, the agricultural agent or others with special knowledge usually give some lectures. Visual aids such as pictures, charts, lantern slides, movies, diagrams and black boards are freely employed. Through general meetings, the agricultural agent comes in direct contact with a large number of farmers with great economy of time and expense.

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23. Questionnaire: "Visit farms" 56-0-0
24. Questionnaire: Participate and assist in agricultural and allied activities, 53-0-3

Sometimes the railroads give financial assistance and run special trains at reduced fares in order to induce more farmers to attend such meetings.[25]

Agricultural Information Service.—Many agricultural agents assist the farmers by conducting an agricultural information service. The farmers are invited to ask questions on various agricultural problems which they encounter in their work. In answering these questions, information may be drawn from many sources: practical experience, personal observation, books on agriculture and bulletins from experiment stations and state and federal departments of agriculture. The agricultural agent keeps a sufficient supply of useful bulletins published by the colleges or the United States Department of Agriculture for distribution among the farmers. Many of his own publications are particularly adapted to the purpose of answering local inquiries. Questions from the farmers may be about the nature of the territory along the railroad or regarding everyday problems of farming as those connected with soil, fertilizer, crops, livestock, horticulture, engineering, forestry, diseases, pests, weeds or household conveniences.[26]

Correspondence.—Practically every agricultural agent corresponds with the farmers.[27] Letters must be written to make arrangements for meetings and other activities. Letters from farmers asking for information must be answered promptly. In answering requests for information, a bulletin or a form letter may be sufficient.

The circular letter is economical means of disseminating information to large numbers of people in such a way as to influence them to accept the practices recommended. Care is taken in writing circular letters so that they will gain attention, hold the interest, create realization of the seriousness of the problem, arouse a desire for remedy and cause a decision to act.

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25. Questionnaire: Financial assistance, 16-32-8; Special fare when warranted, 38-12-6.
26. Questionnaire: Agricultural information service, 37-11-8
27. Questionnaire: Correspondence, 54-0-2

Short Courses[28]—A number of agricultural agents have attempted to give short courses to farmers on practical subjects either with or without the assistance of the county agents and the agricultural colleges. Such itinerant schools usually last from two to five days. A more practical method is for the agricultural agent to help the agricultural schools get more students for their short courses during the winter. Some offer scholarships as an inducement. It is not worthwhile for the agricultural agent to attempt to run the school himself where such courses are available through the other organizations.

Tours.[29]—Agricultural agents often arrange tours for the farmers which include visits to important terminal markets where the farmers can see for themselves how their products are sold. Here they also learn prevailing methods of grading, packing, shipping, loading, storing, and warehousing. A typical itinerary would include a visit to various produce terminals where farmers may see how their products are unloaded, handled and distributed. Visits are also made to commission housas and other merchants to see how they handle, sell and distribute the farm products. They may visit auction rooms, water terminals, stockyards, grain elevators, mills and factories where farm products undergo certain processes.

Tours may be arranged for the purpose of visiting some progressive farms on which new practices can be observed or to the agricultural college and experiment station in which plans have been made to give the farmers entertainment as well as an opportunity to learn something useful. Such tours are usually for the dual purpose of education and diversion. The railroad, of course, gets the benefit of the passenger traffic.

For special occasions, such as fairs, exhibits, farmers' meetings, and festivals, the railroads often run excursion trains in order to increase the attendance.[30]

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28. Questionnaire: Offer short courses, 19-31-6
29. Questionnaire: Conduct tours, 43-11-2
30. Questionnaire: Special fare when warranted, 38-12-6

Demonstration Farms.[31]—Quite a number of railroads operate demonstration farms, the purpose of which is to show the farmers how certain kind of soil may be profitably worked. For example, it was thought that the soil of Long Island was unsuitable for farming until the railroad established a demonstration project and showed the people that this land was well adapted to agriculture. Another railroad operated a demonstration farm in Michigan in order to demonstrate that certain sandy soil is suitable for agricultural purposes Demonstration farms are also used as models for illustrating certain approved practices. Sometimes, they are used for experimental purposes such as testing out seeds and fertilizers.

In order to make the work of such farms more influential, sufficient publicity should be given them. All farmers who might be benefited by them are urged to visit the farms. After they have served their purpose, the railroad generally disposes of them, as railroads do not regularly engage in farming.

Demonstrations.—Under this method, the learner is not asked to accept mere statements of fact. The fact, whether it relates to the quantity and kind of fertilizer recommended, a dairy ration suggested, or the alteration of a pattern, is given practical application. Fertilizer in required amounts is applied to the soil, cows are fed the ration suggested, and the pattern is laid out. Doubt as to the validity of the facts is thus removed. Better still, the person taught becomes the demonstrator, thus adding to the advantage of hearing about and seeing the result, a third factor, that of "doing", which helps greatly to clinch the lesson. This method is particularly well adapted to teaching adults-men and women with mature minds and more or less fixed habits of thought and action.[32]

The railroad agricultural agent shares with others engaged in extension work the belief that the method demonstration and the training of local leaders are the

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31. Questionnaire: Demonstration farm, 14-35-7

32. pp. 520, Survey of Land-Grant College and Universities, United States Department of Interior, Office of Education Bulletin, No. 9. 1930

most effective ways of reaching a large number of people. As a result, much emphasis is laid upon these methods. Recent investigations reveal that this is not always true.[33] The local leaders are not very influential because they can reach only a small number of people. Before taking up the project of training local leaders, the agricultural agent must first make sure that there are enough potential farmers who would subject themselves to teaching by the local leaders. If the audience is assured, the method demonstration project through the local leaders is capable of bringing results.

The agricultural agent directs the local people in the conduct of result demonstration for the purpose of establishing local proof of the desirability of a recommended practice.[34] This is a very costly means of reaching the people. "It involves a large amount of time of the agricultural agent in selecting the demonstrator, starting the demonstration, supervising it throughout the season, and seeing that it is properly completed and that data on yields are obtained. The small direct influence of demonstrations is due to many poor demonstrations and to the small number of people brought into direct contact with the ones which are convincing. The already high cost of result demonstrations is still further increased by the demonstrations started but not completed, by those which fail to convince and by needless duplication of demonstration." It is important for the agricultural agent to cut down the number of result demonstrations to the minimum even where local proof is urgently necessary. It is usually possible for him to obtain ample proof from results at the experimental stations and successful local farms. Such results are usually placed before large number of people through such means as meetings and news stories.[35]

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33. Technical Bulletins nos. 106 and 125 of United States Department of Agriculture, "Extension methods and their relative effectiveness," "Relative costs of extension methods which influence changes in farm and home practice."

34. Technical Bulletin no. 106, U. S. D. A.

35. Questionnaire: Method demonstration, 33-14-9; result demonstration, 33-13-10

News Releases and Magazine Articles. — Another method which the railroad agricultural agents have adopted is the writing of newspapers and magazine articles.[36] A railroad usually covers a wide territory. It is necessary, therefore, to use some such methods where large numbers of people are to be reached. The result of the work of the railroad as well as the teachings must be supplimented by a thorough follow up through the new articles. Once confidence has been established in the work of the railroad agricultural agent more reliance is placed upon the news articles. As time goes on, an increase in the usefulness of the newspaper in helping the agricultural agent to spread his teachings may well be expected.

The news story is an effective means of obtaining results. The work of the agricultural agent, whether it is a demonstration train, the purchase of pure bred live stock, scholarships or club work, are always new to the residents of his territory. The railroad men know the editors of many country papers personally. The duty of spreading such news is usually assigned to the publicity manager of the railroad and the agricultural agent is himself often the publicity man for the railroad. The larger Western railroads employ agricultural publicity editors. Such news is always welcomed by the local papers, particularly when there is anything of local interest. The county agents as well as the state extension agents are anxious to get these news items and to distribute them through their usual channels of publicity.

Other Printed Matter. — Every agricultural agent has publications for general distribution. They range from casual announcements to carefully prepared pamphlets. There are bulletins, magazines, circulars, pamphlets, dodgers, posters and similar mediums which play an important part in the work of the departments.

The greater number of such publications consist of booklets describing the agricultural opportunities of the territory. These booklets usually give a description of

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36. Questionnaire: News release and magazine articles, 46-7-3

agricultural industries as livestock, fruits or grain. They also give an account of climatic and soil conditions, and other factors showing the agricultural advantages of the territory. A description is also given of transportation facilities, living conditions, agricultural organizations and agencies assisting the farmers. The purpose of such publications is to attract settlers into the territories served by the railroad. In such publications, the railroad makes clear that it is interested in the welfare of the settlers and the prosperity of the territory. The farmers are invited to use the service of the agricultural department. The booklets usually cover one or more states and they are distributed widely in search of prospective settlers. When such persons are located and it is learned in what sections they are interested, literature treating specifically of the locality is sent them.

Another publication issued by the department is the agricultural magazine, which is published weekly, monthly, quarterly, semi-annually or annually. These are distributed to a selected list of farmers and also to libraries banks, merchants, and other organizations interested in, agriculture. They contain articles of particular and seasonal interest, and also news of agricultural activities such as fair, demonstrations and special trains. They give interesting personal news of successful farmers and describe approved practices. The agricultural agents are in the best position to collect meterial of agricultural interest because of their constant contact with the farmers, agricultural colleges and other institutions. All of these often contribute articles. The magazine is a good means of giving the publicity to all activities of the railroad agricultural development. It is essential in supplementing the other activities. It would be impossible for the agricultural agent to keep in close personal contact with every farmer in the territory, but it is possible to keep in touch with all of them through the magazine which is an effective agency both in the development of agriculture and the creating of a better understanding between the farming public and the railroads.

Another large group of publication includes the pamphlets,[37] relating to special phases of agriculture. Some describe various production and marketing practices such as preparing the soil, fertilizing, selection of seed, planting, cultivating, packing, shipping, loading cars, etc. while others deal with a single phase such as methods of culling chickens or building a silo. Some pamphlets contain the names of buyers and sellers of certain products. Sometimes, a survey is made of such products. A pamphlet is usually printed for distribution in demonstration trains, describing the various lessons taught. Pamphlets may be printed in connection with other campaigns and some pamphlets aim at popularizing certain products as strawberries or apples.

Railroad agricultural agents use posters and advertisements freely.[38] Illustrated posters are used wherever a complete chain of means and agencies is maintained. They are particularly valuable in attracting the attention of the passer-by. Posters also serve to prepare the mind to receive other impressions of the same truth, which is the central idea of a project. For instance, they are used in connecton with demonstrations, announcements of meetings or the itinerary of a demonstration train.

Under this heading also come the miscellenous publications of the agricultural departments. They also distribute time tables, system maps, shippers' guides and annual reports.

Their mailing lists are compiled with the help of county agricultural agents, the rural papers, banks, merchants, farm organizations, employees, agricultural colleges, and other agencies. It is important that the publications be distributed only among readers who are interested in their contents. The department endeavors to develop a special mailing list consisting of people actually engaged or vitally interested in farming. The list must be revised constantly.

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37. Questionnaire: Pamphlets, 41-10-5
38. Questionnaire: Posters and advertisements, 41-10-5

CHAPTER XII

The Relation of Agricultural Department With Other Dapartments of the Railroad and With Outside Organizations.

Introduction; Colleges; County Agents; The Federal and State Agricultural Departments; Chamber of Commerce and other Commercial and Civic Organizations; Banks; Fairs and Exhibits; Agricultural Industries; Marketing Associations; Farm Bureau; Rural Church; Other Departments of Own Railroad; Summary of Results.

The railroad was among the pioneer organizations to engage in agricultural extension activities. In the old days, farmers were not organized nor greatly interested in the scientific phases of their occupation. They were suspicious and looked upon the railroads as "gift bearing Greek". Much effort was required on their part to convince the farmers of the necessity for improved practices and of their own sincerity. As a matter of fact, the railroads were among the prime movers in making America farm conscious. This undertaking would probably have died in its infancy had it not been for the enthusiastic support of certain farseeing railroad executives, such as James J. Hill whose interest in agricultural development in the Northwest earned for him the title of "Empire Builder."

Today, the work of the agricultural development agent is still arduous in spite of the growth of a number of more or less similar enterprises. The farmers have come to appreciate the service rendered by this official, and welcome him with open arms. The chief function of the agricultural agent at the present time would appear to be that of a co-ordinator. He not only spreads the news of what his own department is doing but accents the discoveries and contributions of such organizations as agicultural college and other state and national agencies working to improve farm conditions.[1] It is only necessary to mention a few of the better known of these to illustrate this phase of the work of the agricultural agent.

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1. The following list covers practically all the important agricultural development agencies with which the railroads co-operate. These are scattered everywhere and everyone knows their functions and activities.

The College.—The state agricultural college is the nucleus around which extension activities center. The agricultural agent is familiar with this institution because he himself is one of its graduates. It is natural therefore that he should seek its help in his work. Each college has a large body of specialists in the subjects in which he is interested. Each has a force of extension agents and home demonstration agents stationed in the counties working under its direction. The colleges and experimental stations conduct research to determine better methods of crop and livestock production. Inasmuch as the work of these institutions is sound and thorough, the agricultural agents of the railroads base their work upon their findings and follow their recommendations as to varieties and formulas. The farmers have confidence in the information furnished from these sources. The state extension work

1. (Continued)

Governmental.—United States Department of Agriculture with its various bureaus and offices; State government and its agricultural divisions or departments.

Educational.—Crop associations, live stock associations; State agricultural colleges; State extension service, county agents and home demonstration agents; American Farm Bureau Federation; Farmers' institutes; agricultural shows and exhibits; Vocational Teachers of Agriculture.

Fraternal.—Farmers' Union; Gleaners; Granges.

Co-operative associations:—

Crop improvement associations.—Pedigreed-seed associations; Spraying association, etc.

Live stock improvement association.—Bull associations; Cow-testing associations, Stallion associations; etc.

Co-operative buying association.—Consumer stores; Feed; Fertilizer; Seed; etc.

Co-operative selling associations.—Cotton; Dairy products; Wool; Fruit and vegetable; Live stock; Poultry and egg; Tobacco; etc.

Miscellaneous.—Co-operative drainage association; Co-operative threshing association.

Firms.—Fertilizer; Machinery; Seed; Breeders; Live stock dealers; Packers; Chemical spraying and dusting; Farm and home equipment.

Processing industries.—Flour mill; Cannery; Creamery; Warehouse.

Miscellaneous.—Farm paper; Rural churches; Schools; Chambers of commerce and other civic and commercial organizations; American Farm Congress; The World Agricultural Society.

is so thorough that the railroad agricultural agent can best accomplish his purpose by co-operating with it. A great many difficulties can be overcomed by this type of co-operation.

There is a general tendency for the agricultural agent to draw up his program so that it coincides with that sponsered by the state. For instance, when a special project is being emphasized, viz: smut control, it is natural for the railroad to propose the running of a wheat treatment train. The agricultural agent advocates in his territory the smut control methods taught by the college. In order to learn about the program of the extension work, it is necessary for the agricultural agent to participate in the conferences and meetings for extension work at the college.

County Agents.—The extension workers consist of county agents, home demonstration agents, boys' and girls' club agents and other co-operative extension workers who are supported by federal, state and local funds. They are about 6000 in all.[2] At present, they constitute one of the most effective means of diffusing among the American farmers useful and practical information on subjects relating to agriculture and home economics and to the development of a fuller rural life. Their work consists of giving instruction and practical demonstrations in agriculture and home economics to the farmers and imparting to them information on these subjects through field demonstrations, publications and otherwise.[3]

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2. Report of the Director of the Extension Service, Dec. 7, 1930 p. 2. "The entire field staff on June 30, 1930 numbered 5942 persons. Of this number, 4354 were located in the counties, of whom 2580 were in county agricultural agent work, 1225 in county home demonstration work, 246 in boys' and girls' club work, and 303 in negro extension work. The county agents were supplemented in their work by 854 full-time and 246 part-time subject-matter specialists located at the State agricultural colleges. There were also 414 superivsors and assistant supervisors, and 74 administrative officers and immediate assistants."

3. p. 49, Department Circular No. 251, Statement of the Secretary of Agriculture, Aug. 25, 1922.

"Their work covers the entire rural field, which include economir production, economic marketing, and the development of bettec home, community and social conditions. As they are public teachers it is not a part of the official duties of extension agents to perform

The railroad agricultural agent co-ordinates his efforts with those of the local county agents, in so far as this can be done, so that both may work toward the same end. Railroad agricultural agents are not limited by the same regulations as those of the extension workers. Therefore, they are enabled to concentrate their efforts on some particular fields, if they so desire, where the extension workers must carry on a broad program.

Through the county agents, the railroad agricultural agent gets a comprehensive knowledge of local conditions so that he can emphasize what is helpful and combat what is detrimental to sound agricultural development. Through them, the railroad agricultural agent can keep in costant contact with his territory and have really dependable information as to local conditions at frequent intervals. And know the persons or organizations to approach when promoting meetings or other projects. The county agent is responsible for following up and carrying out such plans or projects as the railroad agricultural agent may have started in the locality.[4]

The Federal and State Agricutlural Departments.—The Uniteds States Department of Agriculture is a great institution of agricultural information. It has bureaus specializing in all lines of technical knowledge.[5] It collects and disseminates up to date information regarding every phase of agriculture. It co-ordinates the agricultural promotion work of the whole nation. The railroad agricultural agent looks to it for reliable information and for practical assistance.

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3. (Continued)
for individual farmers or for organizations the actual operations of production, marketing or the various activities necessary to the proper conduct of business or social organizations. They may not properly act as organizers for farmers' associations, conduct membership campaigns, solicit membership; edit organization publications; manage co-operative business enterprises; engage in commercial activities; act as financial or business agents; or take part in any of the work of farmers' organizations, or of an individual farmer, which is outside of their duties as defined by the law and by the approved projects governing their work".

4. See "The County Agent as a Factor in Railroad Development Work," D. C. Welty, 1915, Proceedings of American Railway Development Association.

5. Organization of the United Statet Department of Agriculture:

Agricultural agents have less contact with the state agricultural departments, inasmuch as many of the functions of those organizations are primarily regulatory.

Chambers of Commerce and other Commercial and Civic Organizations.—The railroads maintain a close relationship with the chambers of commerce and other commercial and civic organizations along their lines. They are invariably strong supporters of these organizations. Many railroad officials, particularly those in the traffic department and the development departments are numbered among their members. As has already been explained, the industrial agent participates in the activities of these organizations. In the same manner, the agricultural agent is also interested in them, because such organizations are interested in the development of the agricultural resources of their regions. The degree of emphasis which these organizations lay upon agricultural development varies with the nature of the locality. Evidently, there are few of them so situated that they may not be of help to their cities and communities by an effort to assist the farmers in the solution of some of their problems Sometimes, they neglect their rural territory. When such is the case, the railroad agricultural agent ought to point out to them their mistakes and influence them to organize agricultural committees among their membership. In the footnote below are statements quoted from some authorities showing why these organizations should be interested in agricultural work and the kinds of agricultural development work actually undertaken by some of them.[6] One can readily perceive that most of these

5. (Continued)

Extension Service; Experimental Station; Bureau of Home Economics; Bureaus of Agricultural Economics; of Entomology; Animal Industry; Dairy Industry; Plant Industry; Biological Survey; Forest Service; Chemistry and Soils; Food and Drug; Weather Bureau, Public Roads; Agriculture Engineering; and Office of Information. Library.

6. Proceedings of National Association of Commercial Organization Secretaries: (a) p. 203-204, 1915 "Agriculture and Commercial Organization"—A Committee Report:—

"There are few subjects connected with agriculture which the up to date secretary does not consider worthy of his attention..... Some organizations are doing splandid work in the establishment

6. (Continued)

of agricultural high schools; others are getting strongly behind corn clubs; pork clubs, dairy clubs, horticultural clubs, potato clubs, poultry clubs, onion clubs, and gardening clubs, cooperative market schemes, cooperative purchasing societies, the establishment of rural loan associations, the seeking of state and government experimental farms and laboratories, extension schools, demonstrations in the use of hog cholera serum etc."

(b) p. 73, 1920, "Relations Between the Chambers of Commerce and the Farmer, and Effective Methods Being Used to Interst the Business Man in Development of Agricultural Region": –

"A glance at the subjects included in the constructive programs of chamber.....What are these subjects? Increased production, better markets, better grade of products, better roads, finance, boys' and girls' clubs, labor, farm owning, county fairs, seed selection, control of injurious insects and diseases, picnics, soil restoration, social service, better schools, conservation, and many others. (The speaker goes on to describe in detail how the chambers of commerce accomplish the following lines of work:— stimulating production, standardization and finance, securing farm labor, problems in marketing, good roads and better schools, boys and girls clubs, social service, encourage conservation, individual farm owning.)"

(c) p. 57, 1917, The Small Town Commercial Organization—What Can It Do? by J. F. Leopold, Secretary of C. of C. Athens, Ohio:—

"Small towns are especially fitted to promote and develop all things agricultural. By getting expert farm demonstrators where none now exist, by preaching the doctrine of better farming conditions, by helping to find markets for crops and labor to harvest them, by relieving the farmers' mind of the bogey that all urban dwellers are crooks and instilling a feeling of dependence in the agriculturalist—much has been accomplished for the farm and farmers and the end is not yet. Much of the credit is due the small town and much to the small town chambers of commerce."

(d) p. 155, 1919. Group Meeting "Cooperation with the Farmer":— "More than 500 commercial organizations are now actively cooperating with the farming communities surrounding them. They have torn down the barrier of city limits and enlarged their activities with the entire county as the field of operations".

(e) p. 28, 1915, "Why the chambers of commerce interested in agriculture"? :—

"It is a self evident fact that there are very few chamber of commerce so situated that they cannot do great good for their cities and communities by an effort to help solve some of the many problems of the producers of farm products. The industry and the town depend on the farmers for raw material. All the

activities are similar to those undertaken by the railroad agricultural agents. It is apparent, therefore, that the latter can be benefited by co-operating with these organizations. The agricultural agents can give them help and guidence whenever necessary.

Some of these organizations, being anxious to make a good showing or being over enthusiastic, fall into the difficulty of attempting to do too many things at one time. As a result nothing is done right. Under such circumstances, it is the duty of the agricultural agent to advise them to concentrate their efforts upon a few of the most important problems. The agricultural agent co-operates with them in formulating and carrying out agricultural programs, such as the promotion of crops the introduction of pure bred live stock and the establishment of processing plants such as milk condenseries and creameries.

Banks.—The agricultural agents keeps in close contact with local banks for the reason that these control farm credit in much of their territory and their influence is important in the advancement of farm crops.

The railroad agricultural agent urges the banks to give continued financial and moral support to farm improvement work, home demonstration work and boys' and girls' club work, through co-operation with the state extension force in the development of better agriculture in

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6. (Continued)

farm products with a few exceptions as vegetable, fruit, eggs and hay are brought to the towns to be put into process. No country can be richer than its lands."

(f) p. 207—12, 1925, "Practical Services to Surrounding and Rural Territory." :—

"We now realize that the farmer is the one great factor in the prosperity of the country. The farmer is the biggest customer, the biggest consumer, producer and seller in the whole country. He is the fundamental cause of prosperity. .....

"In view of all this, any practical service which a chamber of commerce may render to surrounding and rural territory is well worth while and cannot help but be fruitful in results. Service of this kind will create and foster that intengible and yet most valuable of business and social asset, GOODWILL.

the state, better homes and the interesting of boys and girls in farm and home life. Nothing in this work is more practical than the loaning of funds for the purchase of good stock and seeds on a business basis and their personal interest in the welfare of the farmers and in the success of their efforts. The banks are also urged to continue their co-operation with the agricultural agent in farm management demonstration and the distribution of account books and they may instruct their employees to help farmers close the books and review the year's business in its more significant features. This would not only be of direct help to the farmer but woud enable the bank to lend its funds to and co-operate with farmers more intelligently.

The banks can encourage the formation of agricultural organizations, the adoption of favorable state laws and in other ways help to promote agricultural work.

Fairs and Exhibits.—The agricultural agents are interested in local and national fairs and exhibits. They may take part in the organization of such fairs or be judges of farm products. The railroad agricultural agent may install his own exhibits showing among other things, the products of the territory, the result of the work of the department and the products of the 4-H club work conducted by the department. The agent does his part in persuading people to visit and to participate in the fairs. He arranges for special trains and gives the occasion a proper amount of publicity.

Agricultural Industry.—The railroad agricultural agents co-operate with the agricultural industries, such as canneries, creameries, cotton, linseed and soybean oil mills by promoting acreage of crops and the production of milk to an extent where the industry may be operated efficiently and profitably. (7)

Marketing Organization.—Whenever group effort of the farmers becomes necessary in the marketing of the products, the agricultural agent advises them regarding the

7. Questionnaire: Help to obtain allied industries, as creamery, etc. 55-0-1

formation of co-operative marketing organizations.[8] He helps them to understand the principles and practices of co-operative marketing. Before the establishment of such an organization, the agricultural agent will make sure that it is provided with capable management, sufficient volume of business and adequate capital. With his knowledge of other successful co-operative organizations, the agricultural agent is capable of putting it on a sound basis.

Farm Bureau.—The agricultural agent co-operates with the Farm Bureaus because of their importance in the agricultural development field. In the footnote, a description is given of the function and organization of these farm bureaus.[9] The purpose of this description is to show how the agricultural agent can co-operate with them. Their broad views and thoroughly planned projects are helpful to him in formulating his own program. Another matter of importance is the relation of the bureaus to the county agricultural extension workers of the government. The farm bureau in a locality is usually the means of getting such extension work started. After the extension workers come in to the locality, they work through this organization because the farmers belong to it. The railroad agricultural agent can work locally with the county farm bureau, then with the state and national bureaus. The agricultural agent can work with all three groups of farm bureaus simultaneously and yet there is no confusion because all of them belong to the same organization and work under the same scheme. No other organization suits the purpose of both detailed problems of the locality and nation wide problems as well as this one.

In a similar manner, the agricultural agent cooperates with other agricultural organizations such as the granges, farmers' unions and gleaners.

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8. Questionnaire: Organize and help cooperative associations, 46-7-3

9 American Farm Bureau Federation: "Back of This Emblem".

The American Farm Bureau Federation is a national unit of the Farm Bureau organization consisting of more than 15,000 organized community units, 1,837 organized county Farm Bureau and 44 state Farm Bureau Federations. (Ch. V., "Back of this AFBF Emblem")

9. (Continued)

The object of this organization, as appear on the articles of incorporation, are to correlate and strengthen the state Farm Bureaus and similiar state organizations of the several states in the national federation: to promote, protect and represent the business, economic, social and educational interest of the farmers of the nation, and to develop agriculture.

The purpose as stated at original organization meeting, at Ithaca. N. Y., 1919 are (1) to develop, strengthen and correlate the work of the state Farm Bureau Federation of the nation; (2) to encourage and promote cooperation of all representative agricultural in every effort to improve facilities and conditions for the economic and efficient production, conservation, marketing, transportation and distribution of farm product; (3) to advise with representives of the public agricultural institutions, cooperating with Farm Bureaus in the determination of nation-wide policies; (4) and to inform Farm Bureau members regarding all movements that affect their interests.

The Farm Bureau Platform for American Agriculture:— "That the American farm home may rest on a foundation of permanent prosperity, the Farm Bureau organization was created, a vast machine built, innumerable activities developed. Unification of this tremendous effort is secured through a basic platform of ten planks. The American Farm Bureau Federation pledges to American agriculture :

I. *Intelligent Production:* The Farm Bureau supports activities designed toward development of a system of intelligent, efficient and economic production, realizing that the prosperity of the farm rests on a foundation of sound production practices.

II. *Control of Markets:* That the prosperity of agriculture may be insured, the Farm Bureau seeks to place in the hands of the agricultural producers the control of the sale of farm products.

III. *Equality for Agriculture:* The standard of living of the people of the U. S. is based on a definite economic plan. The Farm Bureau seeks to extend to farm people the full benefits of this American plan.

IV. *Parity in Purchasing Power:* The Farm Bureau seeks all necessary adjustments of the agricultural industry with other industrial groups, to the end that the farm dollar be worth 100 cents in exchange for the products of these other groups.

V. *Community Development*: The Farm Bureau supports the development of schools, roads, rural electrification, churches, social conditions, availability of health agencies—all factors contributing to the make-up of an ideal community environment.

VI. *Public Representation*: That the agricultural industry be fairly considered in determination of public policy, the Farm Bureau definitely seeks appointment on all important public boards and commissions of farmer-minded men and women.

Rural Churches.—The rural church is the center of community interest. The agricultural agent often finds it useful to enlist the enthusiastic help of the minister when any important program is to be undertaken. He will give his interest and support to the local program of extension work. He and the members of his congregation are the natural leaders of movements looking to local betterment. The church building and grounds are often used for group

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9. (Continued)

VII. *A National Agricultural Policy*; The farm Bureau stands for a national agricultural policy based on a free, independent farm people as contrasted with the peasant agricultural systems of Europe and Asia.

VIII. *Enlarged Markets*: The Farm Bureau seeks both through marketing activities and through research to create new and enlarged markets for the products of American agriculture.

IX. *Full Reward for Individual Effort*: The Farm Bureau stands for that economic system which protect pritvate ownership of property and provides a just reward for individual effort. It stands for public protection through regulation. It opposes communism.

X. *A Representative Organization*: The Farm Bureau provides an organization, community, county, state and national, to supply the facilities for group action in building a permanent, prosperous, free, independent American agriculture.

The Federation serves its members through the following departments: administration, organization department, marketing department, department of inform tion, legislative department, farm to market road department, transportation department, home and community department, rural electrification, board of directors.

For the assistance and guidance of county and community Farm Bureau leaders, the Federation draws up a project book which outlined the detailed instructions for sixteen county and community projects. Each project described was one which had already been successfully developed by one or more counties. The recommended projects are classified under the following heads: farm to market roads, home modernization, a band for every community, home orchards, farm machinery, test kitchens, fire protection, balanced fertilizer, first aid and accident prevention, rural electrification, communication, use of explosives on the farm home and garden improvement, farm management, sewing, and community development.

This project book was placed in the hands of each county Farm Bureau president in the U. S. and a series of letters were addressed to them from the national office pointing out the value and possibilities in each of the recommended projects. The Federation also supplies additional material and further explanatory information regarding any of these projects.

meetings. The minister knows local conditions and is able to determine the program to follow. He is particularly well versed in the local civic and social matters. He is able therefore to give authentic suggestions regarding them. The agricultural agent may arrange through the minister to talk in the meetings of some of the study groups or organizations within the church.[12]

Other Departments of Own Railroad.—In order to make itself more useful to the railroad as well as to improve its own work, the agricultural department co-operates with other departments of the railroad. For example, the agricultural agent co-operates with the **freight traffic department** in handling agricultural shipments from the territory developed and in considering the rate adjustment of special farm products to be shipped out. He needs the co-operation of the **passenger traffic department** in arranging special fares for settlers and in arranging trips for land seekers. He work with the **industrial department** in assisting industrial enterprises locate plants and to plan, design, construct and remodel mills and factories consuming agricultural products such as cotton seed oil mills, canneries and creameries. He needs the help of the **operating department** in arranging and running exhibition trains. The **publicity department** helps him in developing publicity through the media of railroad magazines and newspaper publicity, in advertising the farm products, thus helping producers to secure a better market and in keeping the railroad's entire force as well as outsiders informed of the activities of the agricultural department and hence promoting public confidence in it. He co-operates with the **land and real estate department** in reclaimation projects and in listing railroad property for sale to settlers. The agritural agent sends agricultural products to the railroad **commissary** as one way of disposing of them. He co-operates with the **dining car superintendent** in supplying products from farms along his lines and in giving publicity to special foods produced on them by special mention on the menus. In general, he solicits the co-operation of

12. For full description of work done by churches, see Circular No. 57, United States Department of Agriculture, "The Rural Church and Cooperative Extension Work" by H. W. Hochbaum.

all employees of the railroad in popularizing the agricultural development work through information given to people who are seeking a location or a farming opportunity and by putting them in touch with the railroad's development men.

Summary of Results.—It is impossible to determine the direct results of the work of the agricultural department, though certain results are apparent. Many of the railroads find those activities so important that the personnel and the scope of activities of their agricultural departments are ever on the increase. Everywhere, the agricultural agent has been active; these results have followed: increased agricultural traffic, improvement in quality, adoption of approved practices, increased efficiency, increased in number of settlers, settlement of vast territory, and the development of a greater number of successful farms. Some of the results are intangible. For instance, the agricultural agent makes friends with the public and wins the goodwill of the territory.

In support of these more general statements, citations from reports of the agricultural agents of various railroads are given in appendix VI.

PART III

General Conclusion

PART III

GENERAL CONSLUSION

In spite of the vast territory they cover and the enormous number of people they employ, the railroads occupy, to a considerable extent, a position of isolation from the general public. This has left the railroad too far removed from its patrons. The development effects contact through various agencies with the shipping public.

Although its activities and programs should be flexible enough to meet local conditions, the development department must work according to a definite policy which is fundamentally sound. Such a policy aims at the development of industry and agriculture in the territory and works for the greatest good of the people. However, in doing his work, the development agent, whether industrial or agricultural, must not forget the return to the railroad company which he represents. The quotation in the footnote below stresses this point particularly.[1] The nature of the work of the

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1. p. 3, "The Proper Scope of a Railroad Development Organization," by T. C. Powell of Erie Railroad, An address before the Industrial Property Division of the National Association of Real Estate Board, June 25, 1925

(1) A Railroad Company is not a philanthropic institution.

(2) A Railroad Company has no primary interest in buying or selling property which is not planned to produce either freight traffic or passenger traffic or both, for the benefit of the Railroad.

(3) A Railroad is not interested in building up suburban property merely from the standpoint of handling an increased commuter travel.

(4) A Railroad is not disposed to encourage the location of any industry which cannot reasonably be expected to succeed.

(5) A Railroad under the law cannot change geolographical locations, nor overcome natural disabilities, by establishing rates which unduly discriminate in favor of any location.

(6) A Railroad cannot overcome natural laws nor by any scheme of rate adjustment make profitable a farming enterprise which has no natural justification.

(7) A Railroad cannot overcome by any legal adjustment of rates, poor business methods nor the mistakes which result from inexperienced farming.

railroad development agent differs from that of any other private development agencies in that he neither receives remuneration from his client nor profit by the transection. He works for the railroad and receives a salary therefrom.

The developments departments in the railroads owe their present position to the far vision of the railroad executives who created them and who have been giving them full support. These executives are enthusiastic about agricultural and industrial development. Many of them take an active part in these projects.

One of the most difficult problems relating to the administration of the development department is the selection of a satisfactory staff. Development work demands, in addition to a high quality of scholarship, important factors relating to personality. Successful development agents must deal with people of many different organizations and professions as well as of different age and educational levels. They must, therefore, be able to adapt their work to the varying conditions under which it is to be done. Above all, it is the enthusiasm of the men working in these departments that contributes to their successful operation. All development agents are zealous in their work. They are sincere. They make "service" their ideal. Such men are difficult to obtain.

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1. *(continued)*

(8) A Railroad can, however, become a partner, in a broad sense, of all the legitimate industries, farming operations and merchandising organizations along the line of the Railroad, by giving efficient service and reasonable and just rates.

(9) A Railroad through its development service may help each and every one of these in time of emergency, by advice and by furnish expert and prompt information.

(10) The Development Department of a Railroad studies the trend of traffic and endeavors to supplement light traffic with increased tonnage which can be economically handled.

(11) The underlying thought in all Railroad development is self interest—self interest of the Railroad through increase in profitable traffic; self interest of the Producer through enabling him to find an outlet for his capital and energies; self interest of the consumer through greater competition resulting from a number of competitors for his business."

However, no matter how able these men are, they could not accomplish their tasks if it were not for the help of numerous allied organizations which are undertaking similar lines of work. It is fortunate for everyone concerned that these organizations are co-operating harmoniously in a common purpose. Indeed, the single feature of great strength in the development work of the railroad is its close co-operation with outside organizations. This attitude should be greatly encouraged. However, in co-operating with them, the development agents must understand definitely and clearly the true purposes of these organizations. They must not lose sight of their own duties to the railroad and must not be led into undertaking activities that would impair the confidence and trust of the general public which the department has steadily built up through years of patient effort. Development agents must adhere strictly to a development policy pure and simple. This work must be free from the suspicion of exploitation and commercialization. Nor can the development agents undertake their tasks without help from the other departments, of the railroad. Therefore, the development agents must co-operate with them as much as possible in their daily work.

The faith of the public in the development workers is in no small measure responsible for their success. The manufacturers and farmers, whom these departments have approached, show a great deal of confidence in them. They accept the advice and facts given them, as truth, because they believe the development agents to be sincere. With the way so well paved, the detail of the work is not difficult. Again, the success of the departments depends upon the proper choice of projects and methods. The development agents endeavor to avail themselves, as far as possible, of the experience gained by other engaged in similar work. This fund of knowledge contributes in no small part to the success of the development department.

All the above mentioned factors are most important to the success of this work. Consequently, it is the duty of every agent to strive for greater accomplishments that

would increase the confidence of their executives. They ought to develop their own ability as well as that of the men in their departments. A closer relationship should be promoted with allied organizations so that each may help the others to solve their problems. There should not be too distinct a demarcation of fields of work among these organizations. All of them should be working under a common program. In the mean time, the departments should foster the confidence of the public by being sincere. They must make clear to the shipping public that the railroad has its interest in mind. Care must be taken to choose the most effective projects and methods. Waste should be eliminated as much as possible.

While working in the field, the development agent must be alert in observing the pressing problems that are confronting the shipping public. He will either attempt to offer a solution for them himself or bring them back to the office where the other members of the development depaatment or other departments will be able to suggest a remedy. Such problems may not necessarily be related to development work, for there are many other important projects in which the railroad is interested falling entirely outside of this field. Unless the development agents bring back to the office such problems, they have only partially done their duty.

Economy of time, personnel and funds can be achieved through a proper division of work. Effort should be expended where it brings the greatest results. When the agents are not located in the same office, a centralized control at the head office is necessary to co-ordinate the activities of the several members in such a way as to avoid duplication of efforts.

A great deal of waste comes from the lack of definite programs. When there are too many projects being carried on at the same time, some of them are apt to suffer from lack of attention unless there is a definite working schedule. Consequently, the number of projects should be reduced to such an extent that all can be property handled. Any project started should be followed up. The developmetn

agent must see to it that the work is definitely completed. and remember that quality is as important as quantity. Before a project is undertaken, thorough investigation should be make of existing conditions. If he is not able to make such investigations. himself, he should employ the help of technical experts. Any project undertaken without thorough knowledge of conditions and issues involved, is almost certainly domed to failure.

These departments are not very well known. Their service has not yet been adequately sold. Effort should therefore be made to put the departments in the public eye.

In establishing a development department, the interest of the railroad is not confined to the service it renders to the shipping public, because the organization is directly serving the railroad in many ways. Much has been said about the manner in which development department helps the railroad to reduce claims at the source by educating the shipping public in the proper methods of loading and packing; helps in soliciting traffic and making traffic studies; builds good will and secures publicity for the railroad; helps to determine the policy in regard to the improvement of service and facilities and the extension or abandonment of lines; gives the railroad authorities the proper point of view in regard to matters of agriculture and industry; brings railroad men and the public together in specific transections; aids in the disposal of railroad land and conserves the acreage of available land for industrial and agricultural purposes. These are only a few of the services the department renders directly to the railroad.

So long as the railroads are rendering efficient service, new industries are seeking sites or old industries relocating, the farmers need assistance, in other words, so long as there is progress, the service of the development department is indispensable. The nature of the work may vary according to the progress of the arts, yet no railroad should relinpuish its rights to a share of industrial and agricultural traffic by abandoning the development department. Under the present state of affairs, the development department is indispensable. The nature of the work may vary according to the progress of the arts, yet no railroad

should relinquish its rights to a share of industrial and agricultural traffic by abandoning the development department. Under the present state of affairs, the development department must go on as before. It has become an integral part of many railroad organizations. Even though other development organizations should increase their activities and enlarge their scope to such an extent as to take over a great part of the work of the railroad development department, the latter could never be abandoned, because none of the outside organizations would work for the interest of the railroad as does its own development department. The development departments must continue to deal with the whole range of problems which affect the profitableness of farming and manufacturing, with all the facilities at their command. To do this to the best advantage and with the greatest efficiency, it will always be necessary to co-operate with allied organizations and local institutions.

TABLE OF APPENDICES

Appendix I. The procedure followed in collecting data for this study.

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APPENDIX I

The Prodecure Followed in Collecting Data for this Study.

(1). Letters soliciting co-operation of railroads in furnishing data for this study and correspondence with agents regarding detailed information.

(2). Sudy of articles in Railway Age relating to annual and semi annual meetings of the American Railway Development Association; proceedings of the same and attendance at one of its meetings.

(3). Working in the Industrial Department of Pennsylvania Railroad Company and the Commercial Development Department of the Baltimore and Ohio Railroad, where opportunity was given to study correcpondence of the departments and to observe methods of procedure. Also interviewed a number of industrial agents of Eastern railroads: Southern Railway System; Reading Railroad; Central of New Jersey Railroad; New York Central Railroad; Gulf, Mobile and Northern Railroad; Delware and Hudson Railroad; Delaware, Lackawana and Western Railroad and Erie Railroad.

(4) Consulted material availadle in the libraries of the Interstate Commerce Commission and the Bureau of Railway Economics regarding the relation between railroad transportation and the development of industry or agriculture.

(5) Investigations regarding extension work:

(a) Interviewed the county agent in Philadelphia.

(b) Interviewed the director of extension service of the United States Department of Agriculture.

(c) A study of the annual reports of the county agents in which the agents report co-operation with the railroads. Their description of the work of demonstration trains and the part played by the railroads in 4-H club work were most useful for the present study.

(d) Studied in the library of the Office of Experimental Stations which kept a complete collection of publications regarding extension work in every state: including annual reports, bulletins, pamphlets and extension studies.

(5) Investigations of civic and commercial organizations:

(a) Interviewed the Philadelphia Business Association.

(b) Interviewed the Industrial Bureau of the Baltimore Association of Commerce.

(c) Interviewed several departments and bureaus of the Chamber of Commerce of the United States.

(6) A thorough study of the activities of the agricultural department of Missouri Pacific Lines. This study was made possible through the assistance of Mr. L. T. Hsu

(7) Questionnaires sent to all railroad industrial and agricultural agents. The questionnaire together with its accompanying circular letters and tabulation of replies are reproduce below. Questionnare also sent to

the extension directors in every state in the Unites States and in every province in Canada. In reply, each of these directors supplied the author with a list of activities undertaken in the state or its program.

Dear sir:

As a foreign student at the University of Pennsylvania, I am writing a Ph. D. thesis on the Industrial and Agricultural Development Departments of railroads in U. S. A. I believe this is the first attempt to make a thorough study of this important department. Outside of making my own studies, I very much need your co-operation in checking over the enclosed list of activites of your department. The questions are phrased so that you will be able to answer them by "yes" or "no".

I shall send you a copy of the summary reports and agree to withhold the name of your railroad so that its identity may not be disclosed.

Sincerely yours,
C. C. Liang

Dear Sir:

I am very grateful for your kind cooperation in answering my questionnaire sent you on 3rd. inst. Enclosed please find a summary report as promised you. Should any one else in your railroad be interested in this-matter, would you please circulate this report among them?

This report consists of figures only. I shall attempt to give my interpretations of them in my book to be published in the near future. As you may find, there are three figures attached to each item in the report, for example *"16-18-14"*, which stand for "yes", "no", and "no answer" respectively. These figures, therefore, mean that 16 answered "yes", 18 answered "no", and 14 gave no answer". The last item, "no answer", may mean any one of the following things:— (1) A plain no. (2) Doubtful. (3) Question not clear. (4) Overlooked in haste. (5) Both yes and no. (6) Conditional yes, etc.

I hope the information is of interest to you.

Sincerely yours,
C. C. Liang

Supplemcntary data:

Dates of the establishment of a few Agricultural Departments:—

1880; 1885; 1890; 1892; 1894; 1895; 1900 (2 railroads); 1906 (2); 1907; 1908; 1910; 1912 (3); 1913 (2); 1914 (2); 1915 (2); 1916 (2); 1918 (4); 1919; 1920; 1921; 1923 (4); 1925 (2); 1926; 1928; 1929 (2);

The Agricultural Departments report to the following Officers:—

President (6); Vice-President-Traffic (23); Asst. Vice-President (3); General Traffic Manager (2); Traffic Manager (4); Freight Traffic Manager (2); Asst. Manager (1); General Freight Agent (2); Asst. General Freight Agent (1); and General Industrial Agent.

Dates of the establishment of a few Industrial Departments:—

1888; 1896; 1897; 1898; Prior to 1900; 1900 (3 railroads); 1901; 1902; 1903 (2); 1905; 1906; 1907; 1909; 1910 (4); 1911; 1912; 1915 (3); 1916; 1920 (4); 1922; 1923 (2); 1925 (4); 1926 (2); 1927 (2); 1928 (4); 1929 (3); 1930 (2).

The Industrial Departments reports to the following Officers:—
President (11); Asst. to President (1); Vice-President-Traffic (21); Receiver (1); Handled by Traffic Department (2); General Manager (1); General Traffic Manager (3); Traffic Manager (5); Asst. Traffic Mgr. (1) Freight Traffic Manager (6); General Freight Agent (4); Manager, Industrial Development (2); General Industrial Agent (1).

Number of industries established by Industrial Department: —

Total: 10; 15; 60; 150; 200; 200; 250; 319; 579; 1000; 1500; "1068 manufacturing and 1232 non-manufacturing"; 6000; "many hundreds".

On per annum basis; 35; 40; 86; 150; or 250 per year.

Others; One large and 5 small per month, 8 to 10 so far this year 500 in 1929 to 1931; responsible for 25% of all located.

A Check List of the Activities of Industrial Department

DOES YOUR DEPARTMENT UNDERTAKE THE FOLLOWING ACTIVITIES?

If so, write "yes" or use a check mark (V). If not, write "no" or a cross mark (X).

Note:—The three attached figures arranged to indicate "yes", "no" and "no answer".

Do you locate new industries on the line? 66-0-0

Do you develop established industries? 53-10-3

Do you advocate proper zoning in order to conserve industrial acreage? 57-7-2

Do you make survey of mineral and natural resources along your line? 50-14-2

Do you handle side track agreements? 54-11-1

Do you handle agricultural activities? 25-40-1 Or are they handled by agricultural agent? 41-17-8

Do you participate in the determination of policy concerning the improvement or abandonment of various shipping facilities, equipment, & service? 49-14-10

Do you make traffic researches in order to facilitate solicitation of traffic? 33-30-3

Do you issue shipper's guide, pamphlets, and other printed matter? 40-25-1

Do you attempt to prevent freight claims by educating the shippers? 32-33-1

In an effort to prepare the towns for industrial development, do you cooperate with local organizations in the following matters?

Cooperate in arousing the enthusiasm of the citizens 51-10-5. In getting new industries 64-0-2. In listing real estate 53-11-2. In developing industrial colonies 35-27-4. In arranging for the financing of new industries 34-30-2.

Do you cooperate with local organizations in such matters of purely local interest, for the benefit of established industries?..... Improve civic condition 34-27-5. Employment 28-32-6. Trade promotion 33-27-6. Industrial information service to advise in problems of traffic, management, engineering, accounting, etc. 31-30-5. Improve industrial relations and working conditions 29-31-6. Advice during financial difficulties 14-46-6. Arbitration 10-50-6. Aid in securing better public utility services 35-27-4. Create new industries to use by-product 50-10-6. Beautify the town 28-32-6.

Do you cooperate with the following institutions?.....

Industrial bureau in cities 64-0-2. Public utilities 64-0-2. Land and improvement companies 57-6-3. City authorities 64-0-2. State and national chambers of commerce 63-2-1. State manufacturing associations 50-8-8. State government and its divisions, geological, industrial, public construction, etc. 53-6-7. Universities and colleges 51-9-6. Federal Departments (U. S. Department of Commerce etc.) 31-10-25. Other railroads 60-4-2.

Do you employ any of the following methods for publicity?.....

Talk in meetings 57-7-2. Advertising 47-18-1. News releases and magazine articles 42-21-2. Maps 49-15-2. Pamphlets showing opportunities on the line, services, sites, etc. 45-17-4. Monthly and annual reports to the stockholders 28-34-4. Redistribute publications for others 32-29-5

Are the following steps essential in obtaining a new industry?

Do you get tips from employees, personal observation, etc.? 63-1-2

Do you ascertain the requirements of the prospect? 64-0-2.

Do you ascertain the desirability and possibility of success of the prospect? 63-1-2.

Do you take the prospect to see the site and meet local people? 64-0-2

Do you produce surveys, maps, and other data concerning the sites? 62-2-2

Do you familiarize the new industry with the services? 62-0-4.

The Industrial Department:

When was the department first established? Give date .....

Has the name and the size of the department been changed? 39-22-5

Is there a possibility of expansion in the future? 37-23-6

To whom does the department report? Give his title .....

May I have a list of the personnel?

If it is entirely convenient to you, may I know the number of new industries established largely as a result of the department's efforts since its establishment?

A Check List of the Activities of Agricultural Department

DOES YOUR DEPARTMENT UNDERTAKE THE FOLLOWING ACTIVITIES?

If so, write "yes" or use a check mark (V). If not, write "no" or a cross mark (X).

METHODS OF CONTACT WITH FARMERS: (check the methods employed)

Personal Contact With Farmers: Visit farms 56-0-0. Conduct tours 43-11-2. Employ specialists 34-18-4. Offer short courses 19-31-6. Radio 21-27-8. Participate and assist in agricultural and allied activities 53-0-3. Financial assistance 16-32-8. Special fare when warranted 38-12-6.

Writings and Printings: Correspondence 54-0-2. News release and magazine articles 46-7-3. Pamphlets 41-10-5. Posters and advertisments 41-10-5. Agricultural information service 37-11-8.

Objective: Method demonstration 33-14-9. Result demonstration 33-13-10 Demonstration trains 40-13-3. "Follow-up" after a train 36-13-7. Demonstration farm 14-35-7. Motion picture and other illustrated lectures 26-24-6.

LESSONS TAUGHT TO THE FARMERS: (check the lessons taught)

Farm Management: Educate farmers to solve problems 37-13-6. Help them to determine the right type and size of farming 38-11-7. Planning of crops 42-8-6. Record taking 25-19-12.

Land Development and Settlement: Attract settlers 43-10-3. Help new settlers 45-7-4. Help to increase the acreage of land by irrigation, reclaimation, and drainage 32-19-5. Help farmers to get labor 25-24-7.

Agricultural Engineering; Machinery and equipment 24-23-9. Power and electricity 18-25-13. Building and improvement 29-18-9. Road improvement 11-31-14. Sanitation 19-25-12.

Field Crops; Seed improvement 49-4-3. Contests 31-17-7. Improvement of methods 46-6-4. Crop protection 29-17-10. Harvesting 34-15-7 Storage and warehousing 39-11-6. Utilization of crop 45-5-6.

Horticulture; The choice of seed 37-14-5. Program of planting 34-16-6. Pruning 32-16-8. Thinning 31-17-8. Spraying and dusting 37-13-7.

Fertilizer and Soil: Lime campaign 40-12-4. Use of various fertilizers 47-5-4. Control moisture in soil 35-12-9. Crop rotation 40-5-4. Crop selection 46-5-5. Soil test 34-14-8.

Animal Husbandry: Pure bred 45-6-5. Testing 36-14-6. Care 44-6-6. Feed 48-3-5. Management 50-3-3. Sanitation 42-7-7.

Campaigns For: the Control of; Animal diseases and insects 38-12-6. Plant diseases and insects 44-8-4. Weeds 36-14-1. Rodents 19-26 11.

Marketing: Special pick up car for perishables 28-19-9. Advise own railroad to provide sufficient transportation, terminal, and storage facilities for farm products 45-6-5. Study markets and marketing factors 50-4-2. Provide a list of dealers 45-8-3. Help to obtain allied industries, as creamery etc. 55-0-1. Organize and help co-operative

associations 46-7-3. Inspection before shipment 32-16-8. Teach grading, packing, storing, loading, etc. 45-7-4. Know the demand 47-4-5. Prepare for market 45-6-5.

Forestry: Reforestation 29-17-10. Protection 27-18-11. Planting trees along railroad 14-30-12. Forest demonstration farm 4-40-12.

Home Economics; Food and nutrition 13-32-10. Clothing 8-37-11. Home management 10-35-11. Gardening 24-24-8. Sanitation 13-31-12.

Boys and Girls Club; Poultry 35-12-9. Potato 30-15-11. Melon 16-25-15. Canning 21-21-14. Calf 40-6-10. Pig 38-9-9. Dairy 37-9-10. Forest 14-28-14. Judging 26-18-12. Sewing 17-25-14.

Methods of Encouragement; Prizes 33-16-7. Cash 17-27-12. Scholarship 12-30-14. Trips 36-16-4. Help to organize 39-8-9. Free material 22-21-13. Instruction and supervision 29-16-10.

Problems; Does the department need (a) More funds 26-16-4. (b) More personnel 23-20-13. (c) More offices 7-34-15. (d) More co-operation with the outsiders 24-19-13. (e) More co-operation with the other departments of the railroad 21-21-14.

The Agricultural Department:

Does the department develop industries? 33-17-6 Or is it handled by industrial agents? 43-7-6.

When was the agricultural department first established? Give date 34-16-6

Has the *name* and the *size* of the department been changed? Name changed 39-16-6, size changed 39-13-4.

Is there a possibility of expansion in the future? 36-13-7.

To whom does the department report? Give his title.....

May I have a list of the personnel of the department?

APPENDIX II

Factors Governing the Choice of Sites for Industrial Plants.

One of the most important functions of the industrial agent is the securing of new industries for his territory. In order to accomplish this, he must know the various factors effecting the desirability of all the sites in his territory with respect to production. All manufacturers are very particular as to the location of plants, because this has been shown to be an important factor in the success of a concern. It effects directly such factors of production as cost of raw material, fuel and power supplies, labor, over head and the cost of distribution. The important factors effecting the choice of location of plants as listed below are so obvious that they do not need any explanation. The factors are:(1)

Market: Can they be reached economically from the location?

Labor:

a. Skilled: Is there a supply of skilled labor for a particular industry?

b. Cheap: Are wage rates favorable:

c. Non-union: Is it an open shop town?

d. Plentiful supply: Is there a sufficient supply of labor upon which to draw?

e. Steady and dependable.

Living condition:

a. Cheap.

b. Available houses.

c. Agreeale community: Good school, climate, social life, etc.

Materials used in manufacture:

a. Raw: Can they be assembled economically here?

b. Processed: Are the products or by-products of nearby plants used by the manufacturer?

Transportation: Do they offer special advantages at this location?

Railroad; Freight rate; Water transportation; Trucking;

Private siding; Dockage.

Power and fuel: Cost of power, availability and dependability.

Financial aid or investment:

a. Aid: What credit assistance if any was given by the local community or banks?

b. Investment: Was there investment of local capital in company?

c. Other inducement: Free taxes, free sites or other forms of bonus.

Factory building:

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1. p. 258, W. G. Holmes, Plant Location

a. Available building: Was it possible to secure a factory building at favorable term?

b. Fire causes to necessitate rebuild

Law: Are labor and other laws favorable?

Taxes: Were low tax rate an inducement?

Facility for disposal of waste.

Near related industry: Are they nearby to absorb the product or by-product?

Miscellaneous:

Banking facilities.

Cheap land.

Cheap plant.

Purchase going concern.

Near parent company.

Personal: Did personal reasons, such as desire to live in the community outweigh other consideration?

Merger and consolidations.

For all industries, the order of importance of these factors are arranged as follows: Market, labor, transportation, material, available factory building, personal reason, power and fuel, cheap rent, near related industry, living condition, financial aid, taxes, merger and consolidation, cheap land, near parent company, banking facilities.

By industrial groups, the importance ratings as tabulated were as follows:—

Food group: Market, material, transportation, labor, living condition, available factory building, personal reason, power, near related industry.

Lumber: Market, labor, transportation, material, available building, living condition, power, near related industry.

Leather: Labor, available factory building, market, material, near related industry, transportation, living condition, financial aid.

Textile: Labor, market, available building, power, transportation, material, living condition, financial aid.

Machine: Market; labor, transportation, available building, material, living condition, power.

Chemical: Market, transportation, labor, material, available building, living condition, power, near related industries.

Certain industries such as lumber and meat packing, must locate in close proximity to the source of raw material. Other industries are established with regard to their accessibility to a ready market. Some of these are bakeries, sugar refineries, and plants for the manufacture of tools and machinery. A third group such as smelting and the making of wood pulp are located with reference to cost of power.(2)

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2. See Ch. 11, J. R. Smith, The Element of Industrial Management

As can readily be seen from the above, each industry must choose its location according to its own paramount requirements. In approaching each prospect, the industrial a ent must know the factors to emphasize in suggesting a plant site. In making such suggestion, he chooses only the sites that are particularly advantageous. In speaking to the prospect about the sites, he also emphasizes those advantages. For instance, if the paramount requerements of a certain prospect is nearness to market, it would be futile to suggest a site which is far away. In order to induce the prospect to take the site, the industrial agent emphasizes the fact that the site is close to the market as a main selling point. Other subsidiary advansages deserve less emphasis, due to the fact that they would not be as convincing.

Even in a single locality, the factors affecting production are constantly changing. The market may dwindle, undesirable elements may effect the character of the labor supply, methods of transportation may change, raw material may be exhausted and cost of living or taxes may have risen to an unprofitable altitude. Any one of these factors might become sufficiently powerful to cause an industry to seek a new location.

Faced with such contingencies, the agent strives to prevent changes within his territory. If the industry in question is not on his line, he takes this opportunity to try and secure it. Often, industrial relocation is of distinct economic value. Moving from one locality to another, however, offers an expensive solution to the problem. Such steps are taken only when the change is felt to be in the interest of greater economy. For this reason, the choice of a proper site is exceedingly important in order to avoid the necessity of having to relocate such an industry at some later date.

One of the phases of the location problem is the choice among city, suburb or smaller community. Each of these possesses advantages and each also presents problems. In the city, the labor supply is abundant and various, but wages are, as a rule, considerably higher. Labor agitations are also much more frequent in urban centers, Taxes in cities also constitute a large item of expense. On the other hand, the industrial sections of the large cities are supplied with many conveniences not obtainable in rural sections and smaller communities viz: adequate fire protection and greater speed in regard to delivery of supplies.

With the increasing use of trucks and a more adequate power supply, the small town offers greater possibilities for industrial development. Building sites are abundant and cheap. Costs of construction are lower. Wages are less. There is less labor agitation. And living and working conditions are better. The disadvantages are the lack of skilled labor and the sparseness of labor supply. It offers very little business opportunity. There are no available buildings. Being in many cases a one-industry town, the small town possesses some inherent disadvantages.

Many industries are today locating in suburban areas which combine most of the best features of both country and city.

APPENDIX III.

Analysis of the Principal Lines of Work Undertaken by Railroad Companies For the Promotion of Agriculture.

(Not including features belonging strictly to transportation)

pp. 40-4, Frank Andrew, Railroad and Farming, U. S. D. Agriculture. Bureau of Statistics, Bulletin 100, 1912

I. Efforts to increase the area of farm land (Chiefly by co-operating with others)

A. Irrigation of arid or partly arid lands.

B. Drainage of swamp lands.

C. Making cut over timber lands more easily available for small farms.

II. Efforts to increase the number of farmers,

A. Methods:

1. Literature.
   a. Discriptive booklets, circulars and post cards
   b. Regular magazines.
   c. Press notices.
   d. Advertisements in periodicals.
   e. Lists of farms for sale.
   f. Photographs furnished to authors and publishers.
2. Exhibits of products of the region advertised.
   a. Permanent: (in room secured, in stations' ticket office)
   b. Traveling: (in exhibit car; in buildings from city to city)
   c. Special exhibit at land show.
   d. State and other agricultural fairs.
3. Illustrated lecture
4. Correspondence and personal solicitation

B. Regions from which settlers are generally sought:

1. U. S. (N. Central States; E. of Missouri River) or (N. Atlantic States)
2. Canada
3. Europe

C. Kind of land to which settlers are invited:

1. Old farms (Entirely) or (In small tracts)
2. New lands (Cut over timberlands; drained swamp lands; irrigated land.)

D. Principal branches of farming suggested to prospective settlers:—Dairying; general farming; poultry raising; production of orchard fruit; stock raising; sugar-beet growing; truck farming.

E. Cooperation of railroad company with;
   1. State immigration officials.
   2. Local "Board of Trade" and other promotional organizations.
   3. Land company and real estate dealers-

III. Efforts to increase the production of farms:—
   A. By introducing more efficient methods
      1. Improtant topics treated: (Alfalfa; bacon; corn; cotton-boll weevil; dairying; diversified farming; domestic economy; dry farming; gardening; production of vegetable for home use; general agriculture; good roads; grain; insect pests; marketing; orchard; packing for market; plant diseases; potatoes; rotation of crops; seed selection; soil fertility; stock raising; truck farming)
      2. Method used in educational work
         a. Employment of experts to:
            1. Take charge of development work in general.
            2. Suppervise demonstration farm.
            3. Direct experiment and demonstration farm.
            4. Edit and publish literature.
            5. Accompany instruction trains.
            6. Attend public meeting.
            7. Give advice in response to specific request.
            8. Assisting in organizing farmers' association.
            9. Co-operate with State and Federal experts.
            10. Help farmers to obtain laborers.
            11. Investigate characteristics of soil.
            12. Assist farmers in finding a market.
         b. Instruction trains:
            1. In charge of: (Federal or State authorities; of railroad)
            2. Method of instruction
               (a) Lectures from trains or public hall.
               (b) Exhibits of products and appliances.
               (c) Demonstrations of methods.
               (d) Distribution of seed.
            3. Subject of instruction: (Alfalfa, etc. as under IIIa 1.)
   C. Demonstration or experimental farms:
      Purpose (Test some grains, etc.; instruct new settler.)
      Location of farms (in various states).
      Use of railroad farm product. (fair, dining car, sold.)
   D. Experimental plots on private farms:
      Purpose (Instruct new method; reach a large number of farmers)
      How managed (Directed by railroad; work done by farmer.)
      Terms of typical agreement.

E. Encouragement of agricultural fair (Assistance; secure it; prize; transportation of exhibit material)

F. Organization of associations and co-operation with them.

G. Secure students for agricultural college. (Scholarship; Transportation, advertise short courses.)

H. Issue literature (Topic, source of information; how issued; size.)

I. Distribution of seeds and plants.

J. Introduction of high grade farm animals.

IV. By giving aid other than educational:

A. Establishment of farm market (Erection of market house.)

B. Supply of farm labor (Regular and help.)

C. Help farmers to obtain seed grain after a crop failure.

V. Railroad projects that help farmers indirectly:

A. Forestry.

B. Ornamental gardening.

APPENDIX IV.

Excerpts from Correspondence on the Activities and Functions of Agricultural Departments.

(1) "The agricultural department is doing a practical constructive work which profits farmers, shippers and railroad alike. Realizing that allied industries can obtain maximum efficiency only through co-operation, the department is striving to bring about better understanding of traffic problems on the part of the thousands of farmers, shippers and dealers in agricultural products who are served by these lines. By rendering practical assistances in improving crops, locating markets and facilitating shipments, the several agents of the department have been able to achieve definite results and agriculture along the line has been placed on a surer and more profitable basis.

The expedious handling of crops, whether locally or over long distance hauls, will always present problems, but the agricultural department is proving that all traffic difficulties concerning the farmer and his commodities can be appreciably lessened by painstaking endeavor. Wherever and whenever possible, the agricultural department has worked in conjunction with existing community and state organizations development campaigns. In these co-operative efforts, the railroad has provided special trains for travelling educational exhibits and conducted extensive investigations on problems of vital interest to particular farming communities. It has repeatly been made plain that the interest of the farmers are the interest of the railroad that increased production in a profitable basis can be obtained only through the establishment of increased appreciation, on both sides of the problems involved."

(2) "Recognizing that the prosperity of the railroad is largely dependant upon the prosperity of the territory it serves, we have for years maintained an Agricultural Bureau. At present we have a General agricultural agent and three agricultural agents all graduates of agricultural college. The bureau operates in cooperation with the U. S. Department of Agriculture, the state agricultural colleges, National Farm Bureaus, livestock associations and local county farm agents. Particular attention have been given to a four-fold program embodying soil improvement, livestock improvement, crop improvement, and the promotion of boys' and girls' club work." (He goes on to describe in detail the manner in which this four-fold program is carried out.)

(3) "Obviously, the program of the agricultural development department of our railroad must be varied to cover such a large territory. The keynote, however, has always been a self-sufficient agriculture, one in which the farmer might live at home and not be dependent upon the proceeds of one particular cash crop for his income and well being. The program includes also the promotion of profitable crops which are found to be adapted to a given territory. While the program includes diversification, a concentrated production of particularly adaptable cash crops is emphasized for a given territory. In other words, farmers in a given community are urged to grow crops on sufficient acreage that they may be able to ship in large quantities, thus securing the advantage of carlot markets, the attention of distributors, and greater uniformity of production.

Dairying and poultry raising are two phases of farming which the department emphasizes in all sections of the territory. Not only do these two phases of farming bring cash incomes—they are particularly well adapted to the territory because of the temperate climate, with a long grazing season and the greater number of feed crops which can be grown.

The department has always maintained the policy of carrying on its work in co-operation with other official agricultural agencies. In other words, the findings of the state agricultural experiment stations are taken as a basis for the program of agricultural development. The activities of the department are harmonized with those of the agricultural extension service, and the two organization in all states served by the railroad company work in the closest co-operation. The agricultural agents of the railroad very often serve in an advisory capacity to agricural committees of the Chambers of Commerce throughout the territory."

(4) "Everyone admits the basic importance of agriculture and everyone knows that sound and lasting prosperity is absolutely dependent upon the prosperity of the agricultural industry. We, recognizing this fundamental economic truth, are doing everything possible to assist in putting all branches of agriculture on a happy and prosperous basis.

Agricultural development, or the responsibility for it, rests primarily on the people who are living on the land. Institutions such as our railroad, can, and our desire is, to lend every possible assistance. With this in view there is in successful operation, an agricultural development department, headed by and composed of experts. This department and the men who are members of the staff are available to aid in the development in any community or section along sound and practical lines.

Experts employed by our lines, and available for cooperation with people along our lines, are prepared to assist in campaigns of education with a view to proper development and production of any commodity in any community or district. We do not advocate growing two blades of grass where one grew before, but we are prepared to help determine what crops can be produced to best advantage and marketed to best advantage. And we know that the quantity production of any crop in any district is advantageous, for it enables the producers to market the commodity to best advantage and frequently makes it possible to exercise a determining influence on consuming market values.

There are vast areas of undeveloped territory along our line, and we gladly aid farmers and any others interested in development of that territory, and in obtaining best locations for that development. There are other large areas which have been developed to some extent, but which can be further developed to great advantage, and it is our desire to be helpful in assisting and in bringing about proper development of such locations.

Our organization solicits the opportunity to be helpful wherever we can. And anyone interested should feel free to consult us about conditions in any section served by our lines.

As a result of the work of our lines, hundreds of thousands of dollars of new wealth have been put in circulation in many communities and more such tangible prosperity is in prospect in other places served

by our lines. This prosperity reflects itself in every line of business. And it is the desire of us to be helpful in this and in every other way so that the entire territory served by our lines may enjoy the fullest measure of prosperity and happiness."

(5) "Very briefly, the aim of the agricultural development department may be said to be the promotion of a more profitable agriculture in the territory served by the railroad. This does not tell the story, however, inasmuch as a prosperous agriculture means diversification in some section where the farmers are suffering from a one-crop system, and in others the development of an intensified industry, such as the citrus groves on the lower coast of Louisiana. In some sections the problem is not one of crops but of soil fertility. Then the situation must be approached from an entirely different angle. In the main, however, the program of the department is one of diversification. Feed crops for the farm animals raised at home; fruit and truck crops as well as dairy cows and poultry, so that the farm family may have an income throughout the year, are advocated. The farm problem in the southwest will be relieved through a steadier income which can be secured by the growing of more cash crops and by weekly check from the poultry flocks or dairy herd.

The whole program of the agricultural development department is carried on in co-operation with state and government agencies, and an effort is made to work in the closest possible co-operation with the agricultural workers of both state and government.

It is generally recognized that there is probably no more active agency in agricultural development than the county farm agent. There is also another agency that is being recognized, and that is the Smith-Hughes teacher. The agricultural development department carries out its program in co-operation with both groups of workers.

(Followed by description of activities in each territory)

Expansion of the personnel and program of the agricultural development department has been rapid since 1923. Each man in the department has been chosen because of his special training and qualifications, and each had thoroughly demonstrated his ability before being selected.

(6) "One of the great problems of the South as a whole is the utilization of the tremendous acreage of cut over pine lands. The development department of the railroad therefore trys to increase the population of that territory which the line serves. If it is able to add a farmer, the members of his family helps eventually to produce tonnage. If it can secure a factory of some sort, that helps. If through advertising it can aid the communities in increasing the size, of course, it is glad to do so because there will be an increase in business in the way of tonnage. It the farmers are unorganized and cannot dispose of their produce, then it is up to the agricultural agent to find a way in which to relieve the situation. At the same time this is good business, as carlot shipments produce favorable revenues. If in a fruit section or any section devoted to raising vegetable, there should appear diseases of a distructive nature, it is within the province of the department to aid in the eradication of this disease in order that the particular product may move from where it is grown to where it may be needed, thereby secur-

ing additional revenue. (The writer goes on to say that there are some activities that do not produce tangible results, such as addressing chambers of commerce etc.)

(7) "It is the purpose of the agricultural department to function in a manner at once educational to the farmers and farm people, as well as to benefit in other ways. Oftentimes, that department acts as a mediary between bankers and farmers desiring to purchase pure bred farm stock. This has been the means of importing several carloads of such cattle.....

Furthermore, the agricultural department has operated several fruit markting, soil testing, dairy and poultry demonstration trains, all of which carried exhibits and lecturers of considerable prominence. The ultimate result is that the farmer learns and profits thereby—meaning that the railroad will finally benefit by increase freight traffic and earnings."

(8) "Agriculturally, in this country, the aim is to find the very best products the consuming public demand and then assemble the farmers into a co-operative producing plan, disposing of the fresh goods first, and as long as ther is a demand, then have canning plants to take care of the surplus. Colonization is one of our main subjects in the South. That is assembling groups of settlers or farmers from one district or state and locating them in another where real team work will be done. We, down here, have found that the Cow-Hog-Hen and diversification of crops are outstanding for success. The creamery, cheese factory and saw mill, the pork products, the eggs and poultry and the production of a little of everything that can be grown by everybody, means steady incomes and it means that if one crop fails or is not in demand, they will have other that will pull them through. It is a great story and it is wonderful work, if properly carried out. Our state for instance, is a tobacco growing state. The railroad seeks out new products for our farmers to grow. Years ago, our state and other parts of the South was all cotton country. Farmers would grow cotton and have to buy everything that they eat. That's not good business. So, with the activities of the railroad and of course our state colleges and county agents, we have now pulled the farmers out of a very deep rut. And I can conscientiously say this: That it is a very easy thing to do—providing the people have full confidence in the leaders—and providing they know that the government or the railroad are behind the men who carry on the work and that the word "graft" is entirely eliminated because of the fact that the workers are fully paid salary men whose sole duty is to see that the farmers get a square deal and get every dollar of their earnings for themselves."

(9) "The function of the agricultural agent is not for the purpose of making "two blades of glass grow where one grew before" but rather to encourage the growing of two blades of glass at the cost of one before. We find that a greater return for the farm crops means a proportionately greater demand for the manufactured article which our railroad will haul.

In determining upon a project, we first ascertain what the state college or farm organization already in the field are doing on the particular subject. Our policy has been to co-operate with these agencies, rather than to start some new development of our own. This is not only economy but bring greater results, and at the same time brings about a better relation with the public.

As an illustration of how this can be turned to our own advantage, investigation showed that 90% of the soil in X County needed limestone. We joint the state college, etc. in a campaign for the use of limestone, result in the first year's purchase of 7,000 tons 80% of which hauled by our line @85 cts. To date, more than 12,200 ton hauled annually. The increase crop will also give us added revenue for many years to come.

We were asked to sponsor Dairy Calf Club work in one state. We offered ribbon for the county show and a small sum of money as a state prize. Our particular work was to interest businessmen in joining with the state university etc. sponsoring such a club. We have had as many as 35 luncheon clubs join us in this project in one year. One bank put up $13,906, secured by notes on boys and girls in one county for the purchase of dairy heifers brought in for one club. The freight on these alone amount to over $1,200.

We have found it to be economy, in our own operation, to encourage the development of livestock shipping association where shipment from large area are concentrated at one point. This saves stock yards and makes it easier to rander service. Through these shipping association and friendship development, we have found it possible on some divisions to place the responsibility of association for concentrating their shipment on certain days of the week, in this way saving the operation of trains many days when the business would be bright.

We have not followed the demonstration train plan except in projects where the educational material was too great for transportating to the meeting place. In M. we found such a train the best way for carrying on a reforstation program. Thousands of seedling tree were distributed from this train. We believe a special car fitted for demonstration work, which could be moved from station to station by regular train service, could reduce the cost of demonstration train to a negligible figure. Such equipment would be useful in carrying soil laboratory over the state, where analysis could be made to determine the fertilizer and lime requirment of the soil.

We are now turning our friendly relations established with the agricultural folks to account for the passenger department. During the pass year, we have been conducted tours into our own terminal points and into other sections, and in this way have created new business involving 2706 passengers. Our goal this year is set for two and half times this."

(10) "The agricultural departments of nearly all railroads are made up of men having experience in agricultural extension work, either with the state college or as county agricultural agents. There are no requirements, however, that they should be an agricultural college graduate. Some of our good leaders in railroad agricultural work are men who have come up through the ranks and files of the railroad.

The work of our own department was started almost entirely as field work, visiting the organizations already engaged in agricultural development work, offering the services of our railroad in the development of their projects. Without effort on our part, however, considerable office work has developed. This is composed of compiling information gained in our field studies, surveys of communities, etc. Requests come

addressed to the railroad, asking advise about purchasing farm lands where hay could be purchased, corn, or other grains, requests for live stock, and location of certain areas devoted to production of particular crops. We find probably our most important work, from an office standpoint, is that the farmer, knowing our interest in their activities, take up with us the matters that they formerly thought railroad officials would not give consideration to.

Our department has been consistent in its attendance at Farm Bureau meetings, both County, State and National, insofar as possible to attend. In listening to the discussion of the farmers problems, we find where they are planning to organize marketing associations, and we follow these up, many times giving the proposed organization the benefit of our experience, helping them to the end that this often offers us the opportunity to tell our traffic department of possible revenue which they may solicit. The agricultural department does not solicit traffic, directly. We endeavor to find where the traffic is, and advise the traffic solicitor, whose business it is to go after this. (Then the writer goes on to describe the activities in connection with location of plants, concentration of live stock shipments, limestone, tours, and organization of various agricultural in the U. S.)"

(11) "This agricultural department is manned by agricultural graduates who are thoroughly conversant with all branches of agriculture. The main object of the department is to co-operate with governmental agricultural departments in promoting all movements for the improvement of agriculture in its various branches and to facilitate this work in ways that only a large transportation company can.

"We have operated agricultural demonstration trains and conducted competitions in boys and girls live stock clubs, and have assisted in developing new markets for products of the territory tributary to the system.

Two years ago we organized a tour for farmers to Great Britain and Denmark to study conditions of the agricultural markets in the world's biggest consuming centers. This tour was a pronounced success and was a valuable contribution in promoting better production and better marketing methods."

(12) After describing the work done by the immigration department and enumerating the methods employed such as advertising, careful follow-ups, use of printed matters, exhibits, motion pictures, inspection parties, meetings, farm to farm canvas, and its cooperation with the settlers, the writer continues:

"We have for many years been aggressively engaged in general agricultural development of our territory thru educational efforts as well as colonization. Expenditures yearly by our road alone, for both immigration and development, totals over $100,000. This work is, of course, not inspired by purely philanthropic motives. There is no attempt to disguise the fact that such expenditure is inspired rather by longsighted selfishness on the part of those who chart the policy of the railroad. The value of a new settler placed on uncultivated land tributary to our line in additional gross revenue is variously estimated at from $200 to $1,000 a year, depending of course upon the settler, the acreage cultiva-

ted and type of farming in which he engages. In connection with our agricultural educational work, stimulation of change from a temporary to a permanent basis in the type of farming carried on is immediately reflected in an increase in the railroad's gross earnings. Smaller farms and more intensive cultivation of the land brings in its wake an increased volume of freight business both in-bound and out-bound. There is probably no business that is as accurate a barometer of farm prosperity as the tonnage moving over an agrarian railroad. No railroad dependent to a large extent on hauling the products of agriculture, can prosper traversing a country populated by bankrupt farmers or even farmers in dire distress. The welfare of the agricultural people in this state and the welfare of the railroads are parallel. The same line of reasoning is commended to other organizations whose demonstrations of interest in this state are chiefly oratorical.

In the conduct of our agricultural development department, which as now set up embraces both immigration or colonization and agricultural educational work, a studious attempt is made to gear up all our activities with all other agencies both public and private engaged in similar work. There is, as you know, danger with work of this character of conflicting and duplicating effort, resulting either in wasted or at best inefficient efforts. All such activities should be closely articulated. We have felt, particularly with reference to agricultural development work, that we should look to regularly established state and federal agencies to initiate projects and determine underlying policies. Someone must wield the baton and the extension service of the State Agricultural College has been looked to in the main for leadership in the agricultural development field of endeavor It will be found that in all the work of our department in the various states traversed by our line, we have tried thru agencies at our disposal to lengthen and strengthen the arm of the extension service in furtherance of their program.

We have definitely figured in Boys' and Girls' Club work and the work of Smith-Hughes agricultural schools thru contributions which have made possible assembling boys and girls from outlying districts of the state at the Agricultural College for inspiration and instruction.

Special educational trains such as land clearing, beet, good seed and better livestock, have been operated without revenue in various states for the purpose of vitalizing these projects thru wide-spread demonstrations of exhibit material and the broadcasting of timely advice.

Our railroad was a large contributor to the capital stock of the Agricultural Credit Corporation and thru loans made to farmers in the twilight zone financially many dairy cows, breeding ewes and pure bred sires have been placed on farm in the Northwest.

77,000 heads of breeding ewes were so placed last fall alone. The agents of our department were active in organizing local loan committees, in securing applications for stock as well as the work of buying and distributing the animals and follow up investigations of security.

Our railroad has operated special passenger trains at exceedingly low rates to various agricultural educational events, such as the Pacific and International Livestock Expositions, the National Dairy Show, Wool Growers' and Stockmen's Association meetings, and from various points in

the several states to agricultural colleges and experiment stations where farmers might view first-hand the progress of experimental work conducted for the purpose of finding a solution for their problems.

Work has been carried on looking toward the introduction of certain grain and forage crops and of new varieties which after breeding, selection and demonstration have been made ready to take out to the farmers for general adoption. Along this line, alfalfa, sugar beet and sweet clover campaigns have had our active support.

We have sponsored directly and indirectly fairs, expositions and exhibits. We have frequently made freight rate concessions on commodities, stimulation of the movement of which played a part in the establishment of better farming methods and a safer, sounder agricultural practice. As an illustriation, a low rate was made on a certain class of rough posts and poles from northern Minnesota to N. Dakota points, as cheap fancing and livestock shelter material."

(13) " 'The farmer supports them all,' is an old saying. But it means a great deal to a western railroad like ours, operating as it deos through the heart of the richest farming country in the United States.

Our line carries more livestock and agricultural products than any railroad in the world. One-third of its total tonnage comes directly from the farm. Indirectly agriculture affects all forms of traffic. Industrial development expands with agricultural development. The relationship is inevitable.

Realizing the basic value of a prosperous agriculture, our management has since the begining taken a deep interest in the farmers' welfare. And the farmer is just as deeply interested in the railroad. He wants good service. Without railroads there can be no successful agriculture. Farm products have value only when they are delivered to consumers. A farmer without a market is in the same position as a railroad which has nothing to haul. Each is necessary to the other. Land values and prices of farm products are to a great extent determined by transportation facilities.

Our line has played an active part in bringing about a more substantial agriculture in the West. This "farmer railroad" is recognized as a strong factor in the promotion of diversified farming and the encouragement of better methods of farming and livestock breeding.

An agricultural department is maintained to stimulate this development and to assist settlers with new agricultural problems to enable them to get a good start and to make a permanent success of their farming operations. This is in reality a service bureau for farmers and business men who are interested in improving agricultural conditions. Much has been done to increase production and the increases have always proved profitable to the farmer. The nature and organization of the work is similar to the Agricultural College extension work and is carried on in close cooperation with the State Agricultural Colleges' county agricultural agents, County Farm Bureau, and other local farm and business men's organizations. The purpose of the work may be summed up in one sentence: "Prosperous communities mean prosperous railroad." The interests of the railroads and the communities served by the lines are identical and interwoven. A well satisfied settler is a good asset. A

misplaced man is a liability. The interest of the railroad cannot cease with the location of the settler for the railroad is deeply interested in his success.

Our line has operated many special campaigns for the improvement of agricultural conditions in its territory. Much educational work to introduce better business methods on the farm, reduce overhead expense and increase profits, has been carried on. Agricultural demonstration trains have been operated. Pure bred sires and improved seeds have been introduced to increase profitable production of live stock and grain. Better methods of tillage, rotations for crops, improvement of soil fertility, and more economical methods of feeding live stock have been introduced. Methods for preventing losses in grain yields due to smut have been demonstrated. Assistance in locating better markets for seed potatoes, grain and livestock, has been given to farmers. Dairying has been promoted as a sound basis for a substantial agriculture. Better methods of loading perishables to prevent loss and damage in transit have been introduced to reduce claims and have brought greater profits to shippers. (This is followed by a description of: soil improvement campaigns; pure bred sire demonstration trains; poultry demonstration trains featuring better methods; profitable pork production demonstrations; wheat improvement demonstration campaigns; development of seed potato industry in dry land sections; sugar beet improvement demonstration trains; colonization policy and results).

It has proved profitable to the railroad to identify itself with these and numerous other project of interest and value to the prosperity of the farmer; and farmers and business men in communities throughout the territory served by the railroad have benefited materially from these cooperative services that farmers cannot easily carry on themselves, but which have proved of such far-reaching value in bettering agricultural conditions."

(14) "In this connection, however, you should keep in mind the fact that the railroad has not attempted to set up an institution to carry on an independent educational campaign along the lines of the Agricultural College, Experiment Station and Extension Department.

The work of this department is intended to be supplementary to and coordinated with the College and U. S. Department Cooperative Agencies. We are trying to avoid duplication and to work along lines that will develop the resources of the country served by our lines and increase railway traffic.

The agricultural development department is a branch of the traffic department. The work covers all phases of agriculture, is conducted by a specially trained personnel, and requires the expenditure of a large amount annually.

The work of the department is based upon settlement and development of the unused productive land served by the railway, by a settlement and colonization campaign, and upon a more valuable use of the resources of the land already occupied, by a campaign of education to interest the farmers to adopt improved methods of farm management and a more permanent and profitable system of agriculture to meet the changing conditions and increasing competition.

The educational phase of our development work is carried on extensively through cooperation with the agricultural colleges and extension departments of the various states, in the operation of educational trains, contributions to 4-H Clubs and Smith-Hughes Agricultural Schools, and special work in connection with livestock, crops and farm management.

In addition to the general work in connection with the colleges, we have one of more agricultural development agents in each state whose time is devoted to assisting the farmers in organization, production and management problems peculiar to their locations. They cooperate with farmers' and businessmens' organizations, farm papers and all agencies for improvement. (The writer then goes on to describe: land settlement campaign agricultural exhibits; a million new settlers; fruit growing industry; settlement of irrigation projects; various educational trains; 4-H clubs and Smith-Hughes School; four new sugar factories; alfalfa and sweet clover; dairying; sheep, cattle and purebred sires).

(15) "The chief functions of the agricultural department are, to assist the farmers, orchardists, livestock breeders and others in the adjacent territory in increasing crop production, improving livestock and in the marketing of surplus farm products and livestock.

Individually and in cooperation with other agricultural agencies, our agricultural department endeavors to induce the farmers and others contiguous to our lines to conserve soil moisture and increase crop yields through the adoption of a suitable crop rotation, the judicious application of fertilizers, the reclamation of lands through farm drainage, the use of improved machinery, the field selection, proper storing and testing of seeds, prevention and control of harmful insect pests and fungus diseases, the pruning, spraying and winter management of orchards, the establishment of conserving plants for the manufacture of cull fruit into vinegar, jellies, apple butter, etc., so as to utilize without total loss, the fruit not suitable for standard packs, the organization and economical maintanance of cow testing associations and community and county breeders' clubs which increase the production of dairy cows and improve the quality and value of livestock and dairy products, the prevention of loss through the production of infertile eggs, the standardization and marketing of crops in standard containers, etc.

This department distributes seasonal literature each month which relates to important phases of agricultural pursuits requiring the attention of farmers, livestock breeders, orchardists and others.

The farmer is confronted with as many or more uncontrollable factors and difficult problems to solve than any other business man. During the growing season he is subjected to the unexpected invasion and ravages of insect pests and uncertain weather conditions, and after crops are produced and stored he is still subjected to the fluctuating markets.

On account of the hazardous conditions surrounding the operations of the farmer throughout the year, he should have and is receiving the support and cooperation of the agricultural department in advancing and promoting interest in the different phases of farming and increasing efficiency on the farm. Without farming, the railroad, financial institutions and all industries would cease to operate."

APPENDIX V

The Experience of some Agricultural Agents

One agricultural agent, after graduating from an agricultural college became horticulturalist of the agricultural experiment station and later professor of horticulture in another university. From there, he became director of the state fruit experiment station, and was given a leave of absence to take charge of the horticulttral exhibit of the World's Fair at St. Louis. He took the position of agricultural agent for one year. He was selected by the State Board of agriculture to be secretary of the State Fair for a number of years, and later he was selected as secretary and manager of the State Agricultural Development Bureau, and was later called back by the railroad to take charge of the agricultural development department.

Another agricultural agent has both the bachelor's and master's degree from an agricultural college. For four years he was agricultural editor for another college. After that he was engaged as executive secretary of the alumni association of the original college.

Another agricultural agent has a master's degree. He is particularly well acquainted with the conditions of the state in which he serves, having been employed there for five years as specialist in cotton marketing with the extension service of the University. He first entered the employ of the railroad agricultural development department in 1925. He later resigned to become connected with the U. S. Department of Agriculture in pink boll worm quarantine work in several states. A few years later, he came back to work with the railroad again.

Another agent was engaged as director of school gardens at several cities after graduation. After serving in the Army during the World War, he was employed as garden specialist for University for four years before joining the railroad development department.

Another agricultural agent was for a time official tester for dairy herd in a state dairy association after his graduation. He was elected county agricultural agent in X County where he made a splendid record.

The following are the experiences of some *Specialists.*

After graduation, a farm marketing agent of a certain railroad was for a time assistant agricultural agent of another railroad. He resigned to become a county agricultural agent. He left this work to become sales manager for a county truck marketing association. For two years he was marketing specialist for the State Extension Service, leaving that work to become farm marketing agent for the railroad.

A colonization agent was a graduate. He was conuty farm agent, farmer, and agriculturist for a chamber of commerce before entering the railroad.

A dairy development agent, immediately after graduation, worked as district forest ranger. He also spent two years in the World War. Later he attended C. University, where he received the degree of doctor of veterinary medicine and master of science.

A poultry development agent is a college graduate with both a bachelor's and a master's degree in agriculture. He was employed by the College as instructor in poultry husbandry while working for his master's degree.

A horticultural agent of one railroad had a degree of master of science. He was horticultural agent of another railroad for six years, and was with the American Fruit Growers, Inc. for three years. Finally, he was extension horticulturist for a University for two years, before taking position as a horticultural agent in the railroad.

Another horticulturist was instructor in horticulture for one year and was county agricultural agent for two years following. Later he became an extension horticulturist. He again became a county agricultural agent for one year before entering the railroad.

APPENDIX VI.

Excerpts from Correspondence on the Results of Agricultural Departments.

(1) "Among the outstanding accomplishments of this department are our active cooperation in what is called the Feeder-Breeder movement in growing and finishing livestock on the pastures and feed crops of the State, creating a better balance in farm crops, assisting in the developing of the movement for terracing, helping in coordinating the efforts of various agricultural organizations of the State, the suggestion and development of the most active pasture movement in the south, the bringing in of several large milk plants into the state, and the active development of vegetable acreage in properly adapted territory, and last but not least, the creation of a better feeling between the farmer, business man and other people of the State to the extent that former animosities are passing and a general spirit of cooperation is being evolved."

(2) "Results of agricultural department work are certainly intangible, and it has always been the policy of this department to work in cooperation with State and Federal, as well as local agents which are already established in the local fields, and certainly no one agency could point to a direct result as their personal or single achievement. It is a fact however, that newer and better processes are being followed by farmers, also that tonnage of products is continually showing substantial increases."

(3) "Our Agricultural and Immigration Divisions, of course work very closely together, inasmuch as our field agricultural agents immediately contact new settlers when they move into our service territory. Newcomers are generally unfamiliar with farming practices when moving into a new country, and our agricultural agents, all of whom are trained specialists in their particular lines, are enabled to aid our new and old patrons by instructing them in the best and most profitable means of production, of harvesting and of marketing the products grown. It is a significant fact, perhaps sometimes overlooked by those who have not studied the immigration work throughly, that before a new settler contributes anything of value to the organization responsible for his settling, it is necessary that a newcomer first must be prosperous. In other words, as a railroad, we must assure ourselves that our patrons are made prosperous, before we are able to reap rewards in the form of reflected prosperity.

During the last quarter of a century that our department has functioned, we are able to point to areas where we have taken a county covered with second growth trees, and by populating it with the proper type of people, we have seen the forests disappear, the soils tilled and made fertile, profitable crops produced, comfortable homes built, roads, schoolhouses, churches and towns spring up, and we have likewise seen, year after year, an increasing carlot movement of produce moved from this developed territory, with the resultant return of cash to the producers, as well as the other residents of the developed area. In one particular instance, a single county X, which, 25 years ago, was covered with standing timber, is today but approximately 20 per cent developed;

yet, from this development there arises nearly 5,000 carloads of early fruits and vegetables to move into the northern markets, at a time of the year so early that the prices are generally very favorable.

In addition to this particular type of land development, our corps of agricultural agents, being, for the most part, trained along some particular branch of agricultural science, such as horticulture, entomology, phytopathology, agronomy, soil chemistry, etc., are constantly experimenting and demonstrating the various practices which, in their mind, may have proven their worth. These practices, of course, vary with each community, inasmuch as our company, being a North and South carrier, encounters the temperate zone as well as the sub-tropical."

(4) "The agricultural development department has in its experience since its organization brought about the development of numerous creameries, milk manufacturing plants, cheese manufacturing plants, livestock breeding centers, agricultural production centers, horticultural production centers, forestry enterprises, fruit and vegetable canning enterprises, and in general has secured substantial results in the matter of introducing and securing the adoption by farmers and farm communities in the territory of new crops, better methods, etc."

(5) "For the past year our efforts have been concentrated on assisting the communities on our line and assisting them in securing livestock and feed so that they may continue to operate. We have in the past, however, placed a great many head of high grade cattle, sheep and pure bred sires in our territory, cooperated with various state and U. S. Departments in programs or campaigns on better seed and farm management, controlling of weeds and also assisted in stimulating sugar beet production."

(6) "We have organized some ten to fifteen new truck growing organizations and we strive in everyway possible to advocate crops that are especially adapted to the land on which they are to be planted. The soil on each individual farm is tested for the free elements of plant food as well as an acidity test, and from these tests we make suggestions as to the adaptibility for various crops and also the kind and amount of fertilizerer that should be used and in all cases suggest that for the first two to three years that they use fertilizer of different analysis and different amount to the acre for their own personal information

I consider that one of the greatest public services rendered by any railroad is through its agricultural department, as it enables the farmers to get a service free of charge that under other conditions they have to pay for either directly or indirectly."

(7) "At one time we were helping some of the Club Work by giving scholarships to both boys and girls, but this has been discontinued for several years on account of the lack of funds.

Some of the most outstanding work we have been able to do is in getting more registered and better bred dairy bulls in our territory, also in getting some permenant pastures established and the erection of silos, and the growing of crops with which to fill these silos. Also the growing of root crops for the dairy herds.

We now have some work being carried on with a pasture and reforestation project, which is to run for ten years. At the end of that time, we hope to be able to show where this work can be carried on to good advantage together."

(8) "Introduction and development bright leaf tobacco, trucking, dairying, poultry, live stock, peach growing, canning plants, co-operative grading, packing and marketing."

(9) "a. Almost universal good will toward Railway Company by farmers and others interested.

b. Establishment of over 1,000 purebred Duroc Jersey Hogs in territory.

c. Establishment of several hundred acres water melons and canteloupes in territory.

d. Increased interest in poultry and egg production.

e. 630 car loads agricultural limestone handled in two years.

f. Many thousands of people have visited our demonstration farm during the four years of its existence. Last year's Barbecue and Field Day attracted nearly 15,000 farm folk.

(10) "Accomplishments of Department 1930

Literature: 280,941 bulletins, circulars and leaflets distributed.

Meetings: 71 meetings attended, assisted in, and arranged for.

Exhibits: 2 exhibits assembled, installed and conducted at State Fairs

Other activities: The department either directly or indirectly assisted in the following accomplishments:—

63 farms purchased at a price of $1,377, 890
1259 apple and peach trees planted.
52,800 forest seedlings distributed for reforestation.
5,554 stocker and feeder cattle purchased.
1,009 dairy cattle purchased.
297 pure bred beef and dairy bulls purchased.
246 pure bred sheep purchassed.
248 pure bred hogs purchased.
720 carloads agricultural lime used.

Approximate number of people reached bo 4-H Club work—3,663 people; by printed matter 20,000 people; Personal contact 5,000 (not including meetings) Total all methods *28,653.*

(11) "To demonstrate the success of this undertaking (soil improvement) I might say that in a nearby state there was a county in which, prior to the operation there of our first soil improvement train not one carload of liming material was bought annually. Every year since the operation of the train the farmers in that county have banded together and purchased a train load of forty or more cars of liming material for use on their farms. Seven soil improvement trains have been operated to date and almost 14,000 samples of soil tested. A check over a four-year period developed that the movement of agricultural lime and limestone to local points on our line has increased six hundred percent. In one state alone during the operation of one of these trains orders were taken by lime company for 350 carloads of liming material.

.....In the period from 1924 to 1927 one thousand and forty six purebred animals were placed in the states through the efforts of our agricultural bureau. (in connection with dairy improvement train)

I might call attention to one instance which will indicate the importance of this work to the farmer. Prior to the operation of our first ram special train, sheep from a certain section were of such poor quality that they were sold at only fifty percent of the standard market price. Since this work was undertaken, the quality has improved to such an extent that the Manager of the Preducers Co-operative Commission Merchants Association in a large city to which this stock is usually shipped wrote us to the effect that sheep from this section now demands the best prices. Naturally the farmer receives a higher price from his animals and the railroad is benefited through the handling of more carloads of livestock."

(12) "It would be impossible to estimate the value of the development work done by the department. It is to a considerable extent educational and cumulative in nature, but the territory is making progress in many ways. The quality of live stock is improving and production increasing Dairying is increasing in all of our states, and new creameries being established; farmers are becoming interested in and putting into practice improved methods and increasing their acreage of feed crops.

Our average grain shipments are holding up or increasing and our shipments of livestock are on the increase.

A concrete example of our livestock development work has been the sheep, cattle and purebred sire campaign of the past five years. More than 200,000 young breeding ewes have been placed in small flocks and 10,000 dairy cattle, on farms in Minnesota, North Dakota and Montana on a three-year installment payment plan. Almost half million dollars worth of purebred sires have been placed on farms of North Dakota during this period.

Practically every farmer in North Dakota has been reached in educational meetings and farm solicitation. Shipments of sheep out of N. D. have been increased more than 300% to over 700 carloads annually."

(13) "It has proved profitable to the railroad to identify itself with these and numerous other projects of interest and value to the prosperity of the farmer and business men in communities throughout the territory served by the railroad have benefited materially from these cooperative services that farmers can not easily carry on themselves, but which have proved of such far-reaching value in bettering agricultural conditions.

Results of the activities of the department in connection with the betterment of agricultural conditions are to be found in the favorable changes which have taken place in the territory tributary to its lines. (Examples follow)

Colonization: In one county in Nebraska where there are 765,000 acres of farm land there were only 15,000 acres under the plow in 1904, or about two per cent of the total acreage of the county. In 1914 there were 80,000 acres under cultivation, or about ten and five tenths per cent. In 1924 there were 420,000 acres, or fifty-five per cent, under cultivation. The value of these farms increased with the development. Their total value in 1904 was $965,250, or $1.25 per acre. In 1914 their value was $5,737,500, or an average of $7.50 per acre. In 1924 the value was placed at $30,600,000 or an average of $40 per acre. This is a typical example of the way the old-time cattle lands were developed into an agricultural

area. And instead of a decrease there has been an increase in cattle production in addition to production of all other farm products, as a result of a more intensive and diversified system of farming.

Purebred Sire Train: A similar survey was made three years after the operation of the special train. This survey showed the following increases in percentage of pure bred sires in Colorado: 12.6 per cent increase in the number of pure bred hog sires; 20.5 per cent in the number of pure bred dairy sires; and 11.5 per cent increase in the number of pure bred beef cattle sires.

Profitable Pork Production Demonstration: In the fall of 1930 lumber dealers in Nebraska territory reached by the train reported the construction of 24,679 new movable hog houses and 3,823 new self-feeders since the operation of the train. In the fall of 1929, 5.9 pigs were saved per sow in Nebraska which was a gain of 11 per cent over the average of the previous spring. In the spring of 1930 the state's average raised to 5.6, a gain of almost 6 per cent. These averages are the highest ever recorded in Nebraska, a total of 400,000 more pigs being saved from the same number of sows. Surveys in these states reveal that practices advocated on the train have been adopted for the first time by many hog producers in the communities reached by the train.

Wheat Improvement: A survey made following a wheat smut prevention campaign in Colorado and Nebraska in 1925 showed an increased production of 500,000 bushels of wheat due to treatment of seed with copper carbonate advocated in the campaign. A wheat smut prevention special train was operated in 1927 in Nebraska, Kansas, and Colorado wheat growing sections, and a recent survey in this territory shows an increase of 32.31 per cent in the amount of seed wheat treated to prevent smut in 1928 as compared in 1927. Reports show a decrease of 46.39 per cent in smut in the 1928 wheat crop as compared to the 1927 crop. There was an increase of 42.8 per cent of seed wheat treated in the fall of 1927 as compared with 1926, and an increase of 54.58 per cent in the amount of copper carbonate sold in this territory. The number of smut treating machines used in this territory increased 47.6 per cent,—all of which shows excellent progress in reducing the enormous losses sustained by the wheat grower from the inroads made on the wheat crop by smut.

Seed Potato: A number of years ago it was found that seed potatoes of a very high quality could be produced on the dry land sections of Nebraska and Wyoming. We assisted growers in making market contacts in Louisiana and in stimulating acreage through a number of campaigns to arouse interest in the growing of certified seed potatoes for southern trade. In 1921 not a single carload of Nebraska seed potatoes was planted in Louisiana. In 1922 ten carloads were shipped to Louisiana, in 1923, forty carloads, and in 1924 more than one hundred carloads. In January, 1926, we operated the first special train of seed potatoes ever sent out of a state; 30,000 bushels of seed potatoes were shipped from two Nebraska counties on a single special train to Louisiana growers. During 1926 Nebraska shipped 225 carloads of certified seed potatoes and in 1927, 450 car loads. Nearly ninety per cent of the certified seed potatoes planted in Louisiana are now produced in Northwest Nebraska. The development of this industry has proved very profitable to these dry land farmers.

Sugar Beet: In Colorado beet districts the increased yield an acre averaged 2.22 tons; in Nebraska, 1.96 tons; in the Billings, Montana, district, 1.71 tons; and in the Wheatland, Wyoming, district 3.87 tons. These increases were secured at a very slight increase in cost of production.

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Ralph Peters, "An Address."
George A. Post, "Corkscres and Other Openers."
John F. Fox, "Immigration Field Work."
W. W. Wood, "What Makes the Department Permanent."
C. C. Dana, "Eliminating Competition by Locating Industry on Joint Tracks".
Alva Agee, "Agriculture and the Railroads."
W. H. Olin, "Intensive Agriculture."
W. P. Hartman, "Opportunities in the Making."
G. C. White, "Markets and Rural Organization."

1916 Tenth Annual Meeting:

T. C. Powell, "An Address."
John W. Kearney, "Publicity and the Railroads."
W. R. Dodson, "An Address."
Mrs. H. B. Fullerton, "An Address."
L. J. Bricker, "An Address".
J. C. Clair, "Railway Development Work."
L. J. Bricker, "Railway Immigration Work."
Jas. A. Hearn, "Agriculture and Horticulture in the South."
W. R. Dodson, "Diversification in Agriculture."
E. M. Williams, "The Proper Distribution and Marketing of Farm Products."
Col. John P. Mayo, "Foreign Immigration."

1917 Eleventh Annual Meeting:

W. H. Olin, "Efficiency in Farm Marketing."
R. L. McKellar of Southern Railway, "An Address."
Tampton Aubuchon of Louisville Industrial Foundation, "An Address."

Semi-Annual Meeting 1920:

Reports of Outlook, by the Chairman of Agricultural Committee, Mr English, W. L.; and Chairman of Marketing Committee, Mr. W. H. Olin.

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1920 Twelth Annual Meeting:

Archibald Fries, "An Address."
J. W. Coverdale, "American Farm Bureau Federation."

1921 Thirteenth Annual Meeting:

Frederick A. Wallis, "Immigration: An Economic Problem, But Not a National Menace."
Charles H. Herty, "Relation of Chemistry to Railroad Development."
G. W. Curtis, "Industrial Development on the Canadian Pacific Railway."
E. F. Benson, "Methods of Securing Desirable Settlers for Vacant Lands."
J. William Firor, "The Sweet Potato Industry in the South."
Walter S. Ayres, "Utilization of Stumps and Waste Wood in the Logging Fields and Reforestation of Southern Cut-Over Lands."
W. H. Hill, "Co-operation Between Development Departments and the Community Advertising Department of the Associated Advertising Clubs of the World."
F. Benz, "Potato Production in the Northwest."
J. D. McCarthen. "Methods and Scope of Publicity; Its Importance to Development Work."
S. L. Strivings, "What the Farmers Want of the Railroad."
C. B. Michelson, "Developing Small Town Markets."
F. S. Welsh, "Inspection Service at Point of Origin and at Terminals for Perishable Commodities."
Jesse M. Jones, "The Value of Colonization Advertising."
Thos. S. Acheson, "Methods of Agricultural Development Work on the Canadian Pacific Railway."
E. G. Reed, "Farm Storage as an Aid to Marketing."
R. R. Walker, "Live Stock, Its Place in Agricultural Develoment."
George E. Roberts, "An Address"

1922 Fourteen Annual Meeting:

C. C. Lory. "An Address."
A. A. Reed, "Let Us Make No Mistake. The Job is Not Finished."
H. R. Safford: "Development."
Charles M. Hatfield, "Industrial Campaign by Chamber of Commerce, City of St. Louis."
James Underhill, "How the Railroads Can Help in Developing the Mineral Resources of the Country."
E. O. Fippin. "The Relation of Liming Materials to Larger Agricultural Production."
R. E. Shepherd, "Status of National Reclamation Legislation in the United States."
F. D. Zimmermen, "General and Specific Advertising—Its Importance and Value."
W. D. Tidwell, "How Railway Development Workers Can Cooperate with the Carlot Dealers."

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Lee A. Reynolds, "Successful Land Settlement."
J. H. Jasberg, "Practical Colonization Work."

1922 Semi-Annual Meeting:

W. H. Manss, "An Address."
H. L. Ford, "Value of Departmental Publications."
T. A. Hoverstad, "The Development Department of the Chicago Great Western Railroad."
B. F. Foast, "Colonization."
Thos. S. Acheson, "Cooperative Marketing."
G. G. Ommauney, "Development Work on the Canadian Pacific."
W. C. English, "Plans and Methods for Developing Perishable Freight Producing territories and Giving Service to Commodities Produced."

1923 Fifteenth Annual Meeting:

C. B. Hutchings, "The Problems That the Farm Bureau Has With the Railroads."
H. B. Rogers, "Shipping Point Inspection."
W. H. Olin, "Disscusion of Shipping Point Inspection of Perishable Farm Commodities Offered Carriers for Interstate Shipments."
F. Benz, "Discussion of Inspection at Shipping Points."
E. L. Leenhausts, "The Producers' Part in Costs of Distribution."
Discussion: "Value of Co-operation with County Agricultural Agent."
Richard T. Ely, "Effects of the Railways in the Development of Economics."
Joe Marshall, "Cooperation in Freight Claim Prevention."
P. T. Cole, "Warehouse Receipts for Credit."
E. S. Center, "Comparison of State and Federal Systems for Licensing Warehouses."

1924 Sixteenth Annual Meeting:

William B. Bankhead, "Reclaimation."
W. H. Olin, "Some Pitfalls in Cooperative Marketing."
R. G. East, "Problems of a Nation-Wide Cooperative Marketing."
R. R. Walker, "Problems of A Nation-Wide Cooperative Marketing."
Val Kuska, "Problems of a Nation-Wide Cooperative Marketing."
B. Mifflin Hood, "Research as a Factor in Agricultural and Industrial Development."
Andrew M. Soule, "The Relation Between Agricultural Railway Men and Other Forces Working for Better Agriculture."
Daniel E. Willard, "An Address."
W. T. White, "What the Seaboard Air Line Railway Has Come to Encourage the Poultry Industry."
D. A. Downs, "The Place of the Development Department in the Railway Organization."
Conwell, "Importance of Marketing Cotton."

1925 Seventeenth Annual Meeting:

W. B. Bizzel, "The Relationship of Agricultural College to Railroad Development."

American Railway Development Association Proceedings:

William Pugh, "The Railway Industrial Representative's Relations with Industries on His Line."
G. E. Bate, "What Has Been Accomplished by the Industrial Department of the Delaware and Hudson Company."
L. W. Baldwin, "An Address."
William S. Myers, "The Position of Nitrogen in Agriculture, Our Leading Industry."
R. G. Buford, "Is the Railway Industrial Problem Different in the West from that in the East?"
Z. G. Hopkins, "General Discussion of Public Relations."
Robert D. Maltby, "Vocational Training Schools."
W. A. Wurzach, "Relation of Farmers, Organizations to Railway Development."
Col. Ike Pryor, "Compare Herd Driving Days with Railroad Transportation of Livestock."

1926 Eighteenth Annual Meeting:

W. H. Hill, "Agricultural Advertising."
Gurton, "The Policy of Intersting New Settlers."
C. G. Ommanney, "What Railway Development Department Develope."

1927 Nineteenth Annual Meeting:

William P. Bradley, "Address of Welcome."
E. E. Kramp, "The Rising Tide in Industrial Development."
C. Price-Green, "The Progress of the Development of Natural Resources on the Canadian National Railway."
John D. Willard, "The Value of Continuing Education in Agricultural Development."
R. S. Binkerd, "The Progress in Public Relations Activities, Eastern Railway."
C. D. Morris, "The Progress in Public Relations Activities Western Railways."
Norman S. Rankin, "Immigration, Colonization and Development in Canada."
Guy W. Ellis, "Real Estate and Industrial Development."
L. D. Upson, "The Effects of Taxation in Industry and Agriculture."
C. E. Arney, "Tax Economy Possibilities."
H. C. Rather, "The Problem of the Corn Borer."
J. T. Horner "Marketing Its Place and Scope in Economics."
Earle G. Reed, "How the Railroad Agricultural Department Can Aid in Livestock Loss Prevention."
L. D. Fuller, "Advertising as an Aid to the Farmer in Selling His Products."
C. A. Radford, "The County Press as a Means of Public Relations Contacts."
E. S. Center, Jr, "The Agricultural Bulletin and Its Field of Usefulness."
W. H. Olin, "The United State Reclaimation Policies."
W. H. Lapp, "Poultry Diseases, Sanitation and Production."
Walter L. Dunham, "Banking Institutions and Their Relation to Community Industrial Development."

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Louis J. Flint, "The American Plan."
A. L. Moorshead, "Real Estate Oporators and Industrail Development."
John J. Danhof, Jr, "Terminal Switching Charges and Industrial Side Track Contracts."
J. C. Beukema, "The Requisites of a Campaign for Industrial Development."
Myles Bradley, "Industrial Relations."
Franklin Edwards, "Industrial Surveys, Real Estate and Industrial Development."

1928 Twentieth Annual Meeting:

Poole Maynard, "Raw Materials in the Southeast and Their Importance in the Rising Tide of Industrial Development."
S. T. Fleming, "Research and Agricultural Progress."
J. H. Montgomery, "The Relation of Plant Quarantine to Agriculture."
A. W Payne, "Meeting New Competition in Industrial New England."
Channing Cope, "Industrial Development in Georgia."
H. C. Sovacoll, "A Successful Plan for Industrial Development Through Cooperation with Civic Interests."
Burdette G. Lewis, "Marketing Florida Farm Products."
E. H. Anderson, "The Value of Surveys in Agricultural and Industrial Development."
Edith L. Fullerton, "Selling Agricultural Development to Women."
R. A. Mc Crainie, "Meeting Transportation Needs of Florida."
J. F. Jackson, "Legislation which will Hasten Reclamation work Favorable to the Southeast."
H. L. Rhodes, "Inspection and Grading of Perishable Products."
J. N. McBride, "How Cooperative Marketing Can Help Produce Distributors to Become More Efficient."
H. N. Rodenbaugh, "The Search for Traffic."

1928 Semi-Annual Meeting:

K. C. Erickson, "Practical Industrial Development."
R. O. Collentine, "Shipping Dairy and Breed Stock by Rail."
Earl Harding, "Production of Pulp and Paper in the World's First Commercial Cornstalk Pulp Mill."
T. C. Powell, "Meeting New Conditions in Agricultural and Industrial Development."
Chris L. Christianson, "Co-operation in Foreign Field."
Lewis Jeffery, "The Hoch-Smith Resolution from a Railroad Viewpoint."
George C. Kreutzer, "Status of Reclamation Work in the United States."
E. J. Leenhouts, "Sugar Beet Situation in West."
J. B. Lamson, "Is it Good Policy to Dump Agricultural Limestone along the Right of Way?"
A. W. Large, "Unloading Agricultural Limestone Between Station."

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W. Q. Fitch, "Fundamentals in the Preparation of Educational Exhibits."
R. J. Plaster, "Agricultural Train Exhibits."
H. M. Madison, "Live-At-Home Letters."
B. O. Hagermen, "Policy and Practice of Railroad Demonstration Farm."
Poole Maynard, "Value of Mapping Undeveloped Mineral Deposits."
E. L. Taylor, "Co-operation with Power and Utilities Companies in Securing New Industries."
G. A. Arnold, "Establishing an Industrial Colony."
M. C. Burton, "Industry's Right to Use Railroad Station Tracks."
T. L. Peeler, "Assigning Portions of the Station Tracks to Private Car Owners."
A. L. Moorshead, "Liabilities of Companies Handling Gasoline."

1929 Twenty First Annual Meeting:

Colonel Ike Ashburn, "Trend of Industrial Development Toward the Southwest."
B. F. Yoakum, "Farmers' Long Fight for Economic Freedom."
Judge Baily, "The Mining Congress."
E. L. Taylor, "Participation by Railroads in Cost of Constructing Industrial Tracks."
J. R. Ablett, "Deviations and Modifications of Standard Side Track Contracts."
J. T. Stinson, "Grape and Strawberry Production."
H. S. McLendon, "Present Fruit Situation 'Citrus Fruits' Florida"
E. H. Anderson, "New York Apple."
E. R. Reed, "Summary of Discussion on Live Stock Trend in the East and Its Effect on Situation in the West."
Fred L. Taylor, "Organizing the Sheep Industry to Meet New Market Problems."
T. A. Hoverstad, "Should the Agricultural Development Man Solicit Business for His Railroad?"
W. J. Fillingine, "Operation of a Successful Fruit and Produce Terminal."
C. F. Miller, "Forest and Transportation."
George M. Crowson, "The Railroad's Part in the Development of the South."
Z. G. Hopkins, "The Value of Uniform Practices in the Railway Development Work."
J. C. Burns, "General Aspects in the West."
E. K. Rush, "Corporation Farming."
J. E. Stanford, "Corporation Farming—Discussion."
P. F. Schowengerdt, "Prospects for the Development of Corporative Farms in the Central Region."
A. J. Dexter, "Policy and Method of Co-operation with Educational Institutions, Commercial and Semi-Commercial Organizations, in the Operation of Demonstration Train."
Dan E. Willard, "Railroad Demonstration Trains—Do They Justify their Cost?

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R. E. East, "Providing Transportation to Semi-Commercial Organizations Co-operating on Demonstration Trains."
J. L. Sigmon, "What is the Most Effective Method of Advertising Industrial Development."
Mrs. E. L. Fullerton, "Railroad Demonstration Farm, 'To Be or Not To Be."?
F. Bachemin, "Recommended Practices, Operations of Demonstration Farms."
H. M. Madison, G. E. Bates and L. S. Fuller, "Value of Regional Organization of the American Railway Development Association."

1930 Twenty-second Annual meeting:

Edward F. Gerish, "Re ional Survey Program in its Relation to Territorial Development."
W. L. Moore, "The Agricultural Marketing Act and the Grain Trade."
Henry Mace Payne, "The Geologist in Railway Development."
Arthur E. Gilman, "Conservation of Land Adjacent to Railraod Right of Way."
J. H. Dolvin, "Readjustment of Original Cost of Industry-Owned Lead Tracks."
Nat T. Frame, "Larger Objectives of Extension Work."
H. M. Means, "Freight Claim Reductions at the Source."
J. A. Mooney, "World's Grain Exhibition and Conference."

1931 Twenty-Third Annual Meeting:

Mutual Interest of Railroads, Realtors, Chambers of Commerce, and Regional Councils in Agricultural and Industrial Development.
"Railroad Man's Viewpoint," by Thomas W. Hulme.
"Industrial Realtor's Viewpoint," by James C. Martien.
"Chamber of Commerce Viewpoint," by Gerrish Gassaway.
Gordon Chamber, "A Railroad Real Estate Agent Looks Us Over."
A. B. Graham, "How to Bring About a Change in Practice."
Firman E. Bear, "Agricultural Research and its Utilization."
F. L. Ayres, "Rail Rates, Trucks, and Water Transportation and Their Effect on Railway Industrial Locations,"
E. F. Reed, "The Relation Between Agricultural and Industrial Developmen."
E. J. Israel, Jr., "The Value of Advertising in Industrial Development Work on Railroads."
John Lee Coulter, "Relation of Domestic and Foreigh Commerce to American Railroad Development."

1932 Twenty-Fourth Annual Meeting:

James S. Thomas, "Relation Between Agriculture and Industry."
William A. Burnett, "Livestock, the Real Cash Crop."
E. L. German, "Discussion of William Burnett's Address."
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April, 1922, p. 19, "Meet Mr. B. & O. in His New Role of Soil Doctor!"
July, 1922, p. 27, "Prize Offerings by B. & O. to Members of Boys' and Girls Clubs for Club Extension Work."
February, 1923, p. 35, "The B. &. O. Poultry Club."
April, 1923. p. 39, "B. & O. Scholarship Winners."
June, 1923, p. 23, "B. & O. Potato Clubs Prove that Certified Seeds Mean Guaranteed Yields."
October, 1923, p. 31, "Soil Doctor Special Gets Hearty Response from Maryland Farmers."
November, 1923, p. 13, "Apple Pie Ridge's Apples go all Over the World" by M. W. Jones
December, 1923, p. 36, "The B & O. Better Dairy Special,"
January, 1924, p. 19, "B. & O. Poultry Clubs' Exhibit Was the Outstanding Feature of the Baltimore Poultry Show."
February. 1924, p. 29, "Illinios Poultry Club Members Stage Great Show at Taylorville."
March, 1924, p. 20, "B. & O. Potato Club in Indiana Makes Remarkable Showing."
April, 1924, p. 23, "B. & O. Scholarship and Trip Winners of 1923."
June, 1924, p. 25, "On to Delaware!"
July, 1924, p. 26, "A Scrub Bull; of Lexington, Ind., Gets Death Sentence."
October, 1924, p. 55, "Apples, Apples Everywhere."
November. 1924, p. 20, "West Virginia Soil Improvement Special Meets with Signal Success."
November, 1924, p. 24, "B. & O. Potato Club Members Outstanding Exhibitors and Prize Winners at Indiana State Fair."
June, 1925, p. 35, "Hoosier Potato Club Exhibit."
June, 1925, p. 37, "Indiana Soil Special Makes Hit."
July, 1925, p. 46, "Romance Buds and Blossoms for Boy and Girl Prize-Winners in B. & O. Agricultural Club Contests."!

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August, 1927, p. 42, "World's Soil Experts Guests of the B. & O. Railraod."
August, 1927, p. 46, "A Wormy Pig Will Never Get Big."
September, 1927, p. 36, "The Four-H Clubs in W. Verginia." by Magaret Keller.
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